



UNIVERSITY OF
LIVERPOOL

**‘We’re in this together’: An exploratory
study of the behaviour, preferences and
perceptions of casualties during simulated
major incident exercises.**

Thesis submitted in accordance with the requirements of the
University of Liverpool for the degree of Doctor of Philosophy

By

Lauren Colette Swan

December 2019

ABSTRACT

This research examines public behaviours, preferences and perceptions in relation to three key issues: 1) preparing for and 2) responding to a major incident; and 3) how emergency services interact with the public during their response. These areas are of great importance for reducing risk and improving public safety but are challenging to study due to difficulties in gaining access to casualties and the unpredictable nature of major incidents.

Chapter one of this thesis provides a narrative review of literature in the field, comprised of 45 research articles that discuss how casualties behave and how they are managed during major incidents, along with how prepared people are for these extreme events. Chapter two is a methodological chapter, which explains the benefits and limitations to collecting data in live exercises. This chapter details the three unique, large-scale live exercises that were used to collect data for analysis in chapters three, four and five. Data collected from these three live exercises was made into one dataset that analyses all three data chapters and comprises of 265 interviews from people playing the role of casualties and 499 surveys from people playing casualties in the live exercises.

Chapter three explores the experiences of people and the types of behaviours exhibited during these exercises and why this may be. A thematic analysis of the dataset for this chapter revealed 3 superordinate themes. One superordinate theme was ‘expected and experienced emotions’ as people expected to feel or observe certain emotions, such as panic, but that was not observed or felt by anybody in the exercises. People also expected to observe different experiences such as chaos, but instead the environment seemed calmer meaning people at times had to alter their expectations of a major incident. It was also found that people felt the exercise was realistic and did feel negative emotions such as uncertainty but also felt more positive and appreciative towards the emergency services following their participation in the exercises. ‘Expected communication’ was the second superordinate theme as the type of information people expected to be told was frequently discussed. Overall more information was requested but it was felt that basic information, reassurance and clearer instructions would especially enable people to cope better and feel less unsure and uncertain.. Lastly, the third superordinate theme of ‘experiences and expectations

from the environment' detailed how people were feeling unsettled and unfamiliar with the major incident environment especially whilst awaiting rescue. This chapter also supports the idea of casualties helping other people whilst awaiting for the first responders.

Chapter four looks at casualty behaviour in relation to interacting with each other and focuses on the benefits of helping one another in major incidents. A thematic analysis of this chapter revealed 5 main themes (i) physical benefits to casualties helping each other, for example somebody could limit blood loss before the emergency services arrive (ii) psychological benefits to casualties helping each other, such as it can avoid feeling isolated (iii) benefits of helping for the recovery phase of the incident (iv) limitations reported by casualties when helping others, difficult personalities for example and (v) how to enable people to help each other, examples include providing people with adequate instructions or equipment.

Chapter five uses a mixed approach, looking at both the perception (*how people felt about the emergency services*) and preference (*how people would want the response of the emergency services to be*) aspect of the research question by drawing on pre- and post-exercise surveys and interview data to examine people's experiences of emergency service interactions. Wilcoxon signed rank tests reveal that for 2 out of 3 exercises the level of trust and confidence people had for the Police, Ambulance and Fire and Rescue Service decreased post event, although it still remained high. A thematic analysis of this chapter supports the quantitative analysis and previous research by finding that a lack of emergency communication impacts the public perception of confidence in emergency services, and willingness to comply. The majority of themes indicate that there were a number of preferences people had that would improve the perception they hold of the emergency services; these themes were to (i) be friendly and reassuring (ii) be informative and (iii) to give clear instructions. The remaining two themes of 'improving perceptions' and 'current perception', show how people believe that more live exercises could help improve the relationship between the public and the emergency services, although people still have a high amount of respect, trust and confidence for the services.

Chapter six uses data collected from members of the public taking part in a survey or focus group and aims to examine what factors affect motivation to engage in

preparedness action and people's preferences for receiving information on how to prepare in advance of a major incident. The 121 surveys collected and 9 focus groups (consisting of a total number of 36 participants) were analysed using a content analysis. Findings show that people have a low awareness of risk information and a mixed perception of receiving information due to beliefs that some of the information kept from them. Preferences for receiving information included receiving actionable (*what can I do*) information through a range of different formats to reach different people. Furthermore, from the qualitative analysis it was found that assessment of threat is a motivator that affects people's decision to become prepared and to take preparedness action as people can be complacent if they do not believe the threat is credible. Other motivators to becoming prepared that were found include sense of community, personal responsibility and self-efficacy.

Overall, whilst most of the findings are from members of the public role-playing casualties in simulated rather than real major incidents, findings extend current theories of casualty behaviour. In particular, findings support the Elaborated Social Identity Model of Collective Resilience (Drury & Reicher, 1999; Drury & Reicher, 2000), and disprove myths that the common public response to emergencies is to panic. Findings regarding public preferences and perceptions pose implications for emergency services, providing concrete, evidence driven recommendations for how casualty communication could be improved in order to increase compliance, cooperation and public perceptions of emergency services.

ACKNOWLEDGEMENTS

This research is dedicated to all the casualties of previous major incidents; a great deal of time has been spent thinking of you and it is hoped that research in this area can help people in these instances. The role-playing casualties in this research also deserve acknowledgement for not only giving up hours of their time to be put through the challenges of a live exercise but for also participating in my research afterwards.

I would also like to thank several people who have personally helped me through my journey to complete this thesis. Firstly, I would like to thank my supervisors, Professor Laurence Alison and Dr Sara Waring, for the opportunities given to me and for all the support throughout this process. I am eternally grateful for their warm, friendly approach but also for their encouragement to do things I never dreamt I would be able to do. I also am thankful to the super organised Dr Michael Humann for your support throughout my PhD. I have thoroughly enjoyed working with all three of you and feel very lucky to have been a part of such a great research team. I am also lucky to have made such wonderful friends during my PhD, Chloe and Grace our catch-ups have meant so much to me!

I am thankful to the agencies I have worked with during this research too: Merseyside Fire and Rescue, Merseyside Resilience Forum, Merseyside Police and Mersey Ferries to name a few. Each agency has been extremely supportive and cooperative throughout the whole process of collecting this research. This research would not be the same without the influence of Chief Fire Officer Dan Stephens. I have never met such a ‘zany’, charismatic and knowledgeable man. His willingness to help, unprecedented access to what I needed, and the many questions will not be forgotten (nor will the laughs, helicopter ride, hovercraft or fire experience days).

Finally, I owe a huge thanks to my one in a million family- my amazing mum who has always showed me unconditional love and support; my life partner Dan who has encouraged me every step of the way; my sweet and thoughtful sister Nikiesha who always cheers me up; my Grandad whose strength is an inspiration and my brothers Jamie and Ryan who have always believed in me. Finally, to my lovely surprise that arrived mid-PhD, my darling baby Jaydan. Everything I do, I do for you. I love you so much, you are my world xxx

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Chapter 1. The importance of understanding casualty behaviour during major incidents: a narrative review of previous research and an overview of research aims

1.1 Introduction: Post incident impact of major incidents

Major Incidents are defined as, '*any emergency that requires the implementation of special arrangements by one or more of the emergency services, and generally includes the involvement, either directly or indirectly, of large numbers of people*' (Joint Emergency Service Interoperability Programme, 2017). This can include natural disasters as well as anthropogenic disasters as both are major incidents due to the damage and devastation they can cause. Although these incidents occur infrequently, their impact on public safety, finances and the environment are substantial and often result in mass casualties, casualties being defined as '*a person killed or injured in a war or accident*' (Oxford Dictionary, 2017). For example, the Haiti Earthquake (2010) affected over 3 million people and took over 230,000 lives whilst the Centre for Research on the Epidemiology of Disasters report the occurrence of 6,873 natural disasters occurring worldwide between 1994-2013, claiming 1.35 million lives and affecting 218 million people on average (2015). Terrorist attacks have been increasing in many places over recent years, including the Imperial Marabi hotel in Tunisia June 2015, several attacks in and across Paris in November 2015, and the Manchester Arena Bombing in May 2017, all of which resulted in mass casualties with many dead, hurt or psychologically traumatised.

Following these incidents, post incident recommendations centre on improving the infrastructure or operational response to prevent reoccurrence. For example, the Hillsborough disaster (1989) resulted in the death of 96 people and led to a public enquiry in which recommendations were made to improve the design and structure of football stadiums (Lord Justice Taylor, 1989). In 2005, the 7/7 bombings saw the alteration of the Terrorism Act, and the Buncefield fire led to suggested improvements concerning the operation of fuel storage sites (Major Incident Investigation Board, 2007). Although these recommendations are beneficial by improving safety, disasters are unlikely to occur in the same way again, but the need to manage members of the public in a way that reduces risks to their safety will always be something that is necessary in any major incident.

Previously there has been a lack of research directed toward human behaviour in emergencies, resulting in misunderstandings that impact emergency planning and response (Cocking, 2013b), however in recent years this has become a growing area of research. The increased scope and severity of human and man-made disasters have highlighted the importance of revising emergency management tools and methods (Kapucu & Garayev, 2011) as well as focusing on the behaviour of those unfortunate enough to be involved as members of the public. This introductory chapter aims to outline some of the key challenges that the emergency services face during a major incident before reviewing the literature in order to discuss what is currently known and any inconsistencies that exist in this area. This will inform the choices made for the body of research contained within this research and how it can help in the real world.

1.2 What challenges exist for the emergency services during a major incident?

Major incidents have the potential to diminish the level of public trust and confidence placed in emergency services and other agencies responding to the incident (Alison & Crego, 2008). They require a careful, planned and complex response as the environment during a major incident can be uncertain, dynamic and unstable (House, Power & Alison, 2014). These types of challenging environments can cause many issues with decision making such as decision inertia, which is a cognitive process associated with failures to execute action when a decision-maker struggles to choose between equally perceived aversive outcomes (Alison, Power, Heuvel et al., 2015). Therefore, a successful major incident response requires the application of a multifaceted skill set by multidisciplinary teams working in unpredictable and hazardous environments (Cohen et al., 2012).

However, these incidents often pose many challenges for the emergency services and the numerous supporting agencies involved. In particular, a review of 32 serious emergencies and major incidents that occurred between 1986 and 2010 identified persistent issues including poor work practices and organisational planning, inadequate training, no system to ensure lessons are learnt, limited leadership, a blame culture, failure to learn lessons, no auditing, no review of previous reports, unclear doctrine, communications on an operational level, and a lack of situational awareness (Pollock, 2013). According to the Pollock (2013) review, the overwhelming number of recommendations called for a change in the doctrine, principles and approach taken

to inter-agency working in major incidents. This led to the creation of the Joint Emergency Service Interoperability Programme (JESIP, 2014), which consists of guidance, training and exercises devised to improve the way the emergency services respond to major incidents. The aim of this new doctrine and training is to assist the services in working together and meeting their main goal of ‘saving lives and reducing harm’ (JESIP, 2017). Guidance consists of five joint working principles (colocation, communication, coordination, joint understating, of risk and a shared situational awareness) and a joint model.

JESIP was primarily introduced to improve interoperability rather than focus on casualty communication and management, however as managing casualties are an important part of any major incident they should not be omitted in any model of working for the emergency services. As managing casualties is not a standalone principle on the joint working model devised by JESIP, it is suggested that there should be specific and evidence-driven guidance and training that supports the emergency services with developing the skills needed to communicate with casualties effectively during major incidents, in addition to improving interoperability. However, other researchers have found that very few policies and published guidance include communication with casualties (Carter & Amlot, 2016; Carter, Drury, Rubin, Williams & Amlot, 2013a; Carter, Drury, Rubin, Williams & Amlot, 2013b). Although the aforementioned research is specifically about casualties going through mass decontamination, it still highlights a lack of priority for understanding casualty behaviour and providing training for responders based on this. This is especially important as research has found that the interaction between the emergency services and casualties can affect the future trust and confidence people have in these agencies (Carter, Drury & Rubin et al., 2012; Carter, Drury, Amlot et al., 2013).

Additionally, the emergency services currently face financial pressures that impact the number of resources, waiting time for response, waiting time for treatment and prevention of crime (Brown, Allen & Lalic, 2019). Therefore, in some cases it may be a necessity that the public do all they can to help themselves and each other. This could be assisted by providing the public with the skills and knowledge to become more prepared in case of emergency and by treating casualties as people who can help in the situation, rather than just a hindrance (Cocking, 2013). More research will therefore be useful for overcoming some of the challenges the emergency services face by

providing guidance on understanding casualty behaviour, recommendations for managing casualties and by highlighting how casualties can possibly become more self-proficient during a major incident by helping themselves and others but also by becoming more prepared in case they were to become involved in an incident.

The remainder of this chapter aims to review the current literature in the areas mentioned before outlining the aims and contributions of this research. A narrative review will be carried out to review the literature, the method of which will be described in the following section. The purpose of this is to synthesis and collate the distributed and multi-disciplinary research in this area that already exists in order to identify what is currently known, and where the gaps are that require further research.

1.3 Narrative Literature Review introduction

Literature reviews involve a comprehensive search to locate all relevant published and unpublished work on a subject; an integration of search results; and a critique of the nature, and quality of evidence in relation to a research question or area (Siddaway, Wood & Hedges, 2019). Literature reviews potentially provide a means of making sense of vast quantities of scientific information and are often highly cited and influential (Siddaway et al, 2019). Literature reviews serve a scientific field by providing a much-needed bridge between the vast and scattered assortment of articles on a topic for the reader who does not have time or resources to track them down (Baumeister & Leary, 1997). Reviews also present conclusions of a scope and theoretical level that individual empirical reports cannot normally address (Baumeister & Leary, 1997). Although synthesizing the literature is a challenging task, the interest in reviews is ever-growing (Ferrari, 2015). Unlike original articles, literature reviews do not present new data but intend to assess what is already published and to provide the best currently available evidence (Ferrari, 2015). For this reason, a review is defined as a ‘secondary research’ study, meaning that it is based on ‘primary research’ studies (Ferrari, 2015).

Literature reviews combine many goals: firstly, to collate what is known about the area and secondly to identify some of the problems or gaps with what has been researched so far. Although the latter may typically raise more questions than it answers, it will be scientifically valuable as it serves a function of improving or expanding on what has previously been done in this area (Baumeister et al., 1997). The most ambitious

goal of a literature review is to develop theory (Baumeister & Leary, 1997), however literature reviews can achieve many other smaller goals such as identifying contradictions, gaps and inconsistencies as well as describing future directions for the research (Baumeister, 2013). Furthermore, literature reviews are vital for bridging the gap in interpretations of studies and it can assist in answering some questions within the field (Baumeister et al., 1997). Achieving these goals is the proposed start to this area of research, providing a basis for highlighting what needs to be focused on.

Furthermore, the two standard types of reviews are (a) systematic reviews and (b) a non-systematic or narrative review (Ferrari, 2015). Systematic reviews are secondary studies that summarize the most appropriate scientific evidence available by means of explicit and rigorous methods (Perestelo-Perez, 2013). The preparation of a systematic review is a complex and iterative process that entails a series of consideration and decisions to minimise the risk of bias and to make the systematic review explicit and reproducible (Perestelo-Perez, 2013). A comprehensive search reduces the biases and increases validity in the approach as it can be replicated (Cooper, 2003). Narrative reviews or non-systematic reviews take a less formal approach than systematic reviews in that narrative reviews do not require the presentation of the more rigorous characteristics of a systematic review such as reporting methodology, search terms and databases used (Jahan, Naveed & Zeshan, 2016).

Meta-analyses are also common ways of synthesising data, meta analyses are defined as *'the use of statistical techniques to combine and summarize the results of multiple studies; they may or may be contained within a systematic review. By combining data from several studies, meta-analyses can provide more precise estimates of the effects of health care than those derived from the individual studies'* (Pg.3, Moher et al, 2015). Given that the goals of this literature review are directed toward understanding what interpersonal approach is suitable when managing humans prior to and during emergencies and the behaviours occurring prior to and during emergencies, much of the research is qualitative, preventing findings from being combined and quantified in a way that would suit a meta-analysis.

Narrative literature reviews form a vital part of most empirical articles, thesis's, grant proposals, articles and book chapters that can be devoted specifically to reviewing the literature on a particular topic (Baumeister & Leary, 1997) A narrative review would

be appropriate when a literature review is desired in relation to a collection of studies that have used diverse methodologies, or that have examined different theoretical conceptualizations, constructs, and/ or relationships (Baumeister, 2013). Narrative reviews synthesize the results of individual studies with no reference to the statistical significance of the findings, they are a particularly useful means of linking together studies on different topics (Siddaway et al, 2019; Baumeister et al, 1997). Narrative reviews can also be used to provide a historical account of the development of theory and research on a topic (Siddaway et al, 2019). As such, narrative literature reviewing is a valuable theory building technique, and is in many ways in contrast to a meta-analysis is, a hypothesis-testing technique (Baumeister et al, 1997). As narrative reviews are a technique that can qualitatively assist in synthesising research on several concepts and can combine methodologically diverse papers, it was chosen to complete this literature synthesis.

However, it is not without limitations, for example in contrast to systematic reviews it often cannot be replicated as it does not have a requirement to report in depth details such as the inclusion, exclusion criteria and the specific search engines details while PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) provides strict guidelines for Systematic Reviews to enable reviews to be replicated (Ferrari, 2015). Selection criteria not being explicitly detailed also allows for subjectivity in study selection, making it the main weakness attributed to narrative reviews as it can potentially leads to biases. Other limitations include the lack of detail around the assumptions, planning and evaluation leading to a presumption of biases in the review. Nevertheless, narrative reviews can be added to continuously and updated with ease, unlike systematic reviews that are also not without their own limitations such as possible publication bias (Ferrari, 2015).

1.4 Narrative Literature Review method

A detailed and in depth description of the method used to conduct a narrative review is not always standard procedure for narrative reviews and there are no acknowledged guidelines or consensus on the structure available for narrative review writing (Ferrari, 2015). However, including additional information shows that the method used is rigorous and valid as well as adding clarity to the key messages of the narrative review. Furthermore, the literature search is a critical step in determining the selection bias and

so due to this, details have been provided in this narrative review about question formulation and the search process to add clarity and to highlight the steps put in place to limit any researcher bias in this process.

Problem Formulation: As with prior preparation of an empirical study a clearly defined question was formulated before the review commenced and the protocol followed to carry out the review aims, and goals were clear. It was found that broader questions lead to larger samples initially, which can become more focused when at the analysing and assessing stage of the process (Perestelo-Perez, 2013). Reviews also allow the researcher to address more questions than a standard study would as it is usually beyond the scope of one study (Baumeister et al., 1997). Therefore, three broad multifaceted questions were asked in this review as they were of interest to the researcher and this research area. The questions asked were: how are casualties currently managed in major incidents? What behaviour do casualties exhibit in major incidents? And how do people currently prepare for major incidents?

Selection Criteria: A set of criteria devised before selecting studies is a key systematic step and to save time and resources a phased approach is usually optimal (Perestelo-Perez, 2013). These criteria were specifically and clearly outlined in advance; it was also deemed important to be wide but selective. It was necessary for papers to be published within a timeframe that made the findings relevant to current emergency response practices, but it was also important not to discount any methods because this is also an important part of this review. Therefore, the following inclusion and exclusion criteria were developed. Inclusion criteria: 1990 or above, empirical (qualitative or quantitative), primary data (also including systematic reviews that included primary research papers) and papers directly related to the subject area (even if it was a different discipline to psychology). Exclusion criteria: papers older than 1990, non-empirical papers, papers consisting solely of author's opinions and any papers that are not written in English (as translating may misinterpret the intended message).

Literature Search: The next stage of the process was to start to search for relevant papers, this was done by using the University of Liverpool library search tool 'DISCOVER'. According to the University of Liverpool website (2019), DISCOVER is a tool that can be searched to find an extensive variety of content including eBooks,

journal articles, eJournals, newspaper articles and other archived materials. Discover includes content from as many sources of information as possible and the content is supplied by major publishers including: Elsevier, Wiley, Springer, Taylor & Francis, Sage, Nature Publishing, IEEE, ACM, Oxford, Cambridge, EBSCO's premier aggregated databases and Over 300 Partner Databases, that give permission to include their metadata in DISCOVER, including JSTOR, LexisNexis, Hathi Trust, DOAJ, Emerald, Brill, BMJ, PsycINFO and many others. Therefore, it was deemed extensive enough to use as a standalone tool for this narrative review due to the wide range of databases, although one of the limitations of this tool is that it is only available to only University of Liverpool staff and students. In order to overcome this limitation, details on the process of the narrative review have been included to show that the review is still rigorous and for the purposes of avoiding any presumed bias.

The process for carrying out the literature search involved splitting the larger research question into three separate questions, which were i) how are casualties currently managed in major incidents? ii) What behaviour do casualties exhibit in major incidents? And iii) how do people currently prepare for major incidents?, and searching for them individually as search terms into the University of Liverpool search tool 'DISCOVER'. The next search involved searching the same questions but using synonyms for words to see if they brought up any additional papers. These synonyms used were 'survivors' instead of 'casualties' in the questions, 'emergencies' were searched instead of 'major incidents' and 'plan for' was searched instead of 'prepare for'. However, some databases (including DISCOVER) have filters to minimise steps in searching as they have different sensitivities to words and characteristics (Perestelo-Perez, 2013). Although striving to search the database using many terms ensures there is a complete, sensitive, efficient and unbiased selection of studies. Ultimately, there was not a lot of difference between the original search and searches using common synonyms. Nevertheless, in order to avoid missing any papers these alternative searches were carried out.

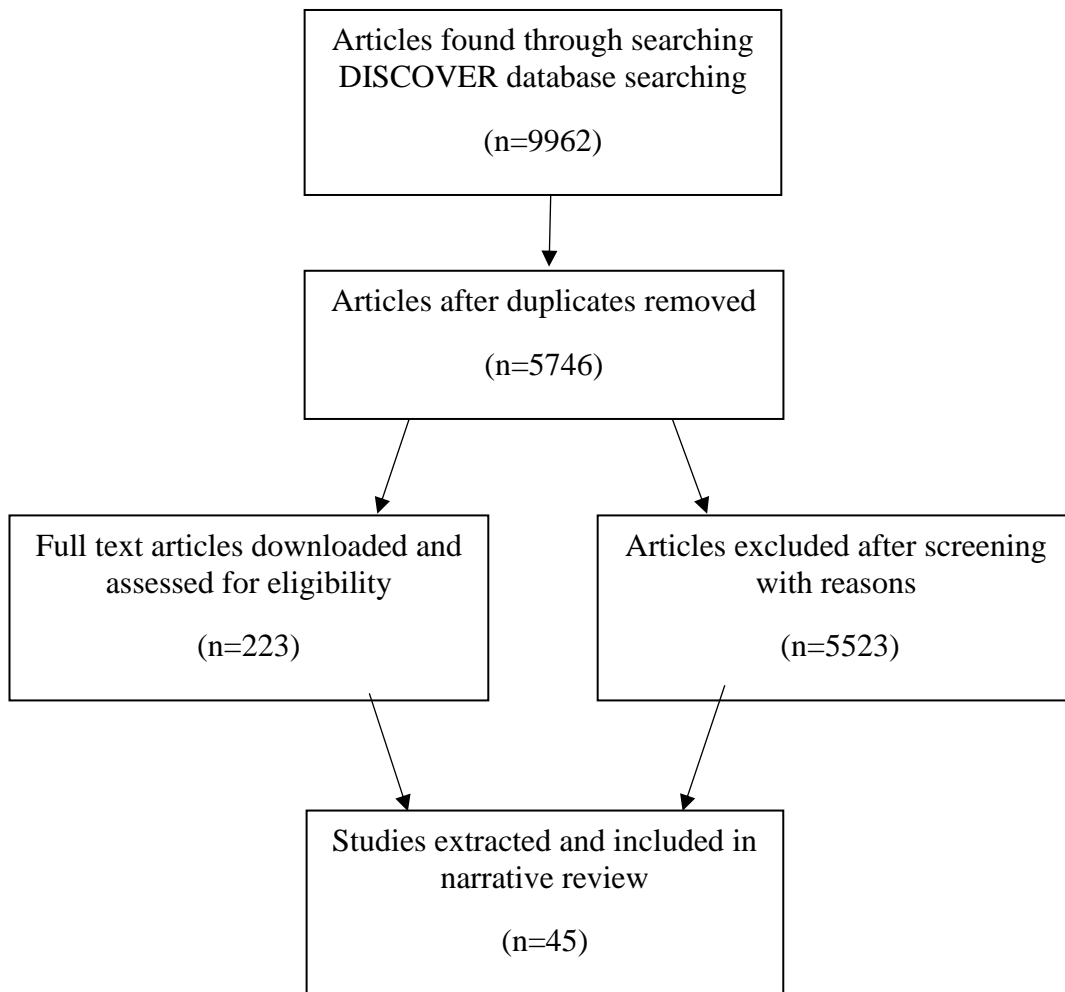
Once the results had come up and the search terms had been refined to ensure articles are published journal articles and are 1990 or newer, the titles were looked at and any primary papers with relevant titles that mentioned casualty behaviour, how they are managed by the emergency services and how people prepare for major incidents/disasters were downloaded. Duplicates of articles are also removed

automatically when reading through journal titles and so were accounted for when collecting details of numbers of journals considered and extracted.

The next step involved reading abstracts of the downloaded articles and if any abstracts fitted the topic they were selected and saved for full review. A lot of articles were excluded at this stage for several reasons. Some examples of reasons for not including articles for full review in this narrative review include: articles not being empirical and instead being somebody's opinion on research (secondary data); research being about post-trauma and PTSD which is out of the remit of this research; the research is too specific to either hospital management, hospital or rescue equipment or the research is about one illness in particular such as cancer, renal failure or strokes.

Reviewing articles: The next stage of the process was to review full papers before extracting information from chosen papers that fit the preselected criteria. Critical appraisal of studies involves comprehensive reading, thorough evaluation and analysis of information including methodology, scope of results, applicability of results and conclusion (Perestelo-Perez, 2013). For this review it meant a total of 223 papers were fully reviewed but of that only 45 were selected as they met the criteria. At this stage papers were excluded if they did not meet the criteria (for example in some cases the abstract was vague and the study was not an empirical piece of research or the article was opinion) or if they did not answer either the 3 parts of the research question stated and once a full read of the article was carried out the subject was not relevant (for example if the research was specifically about hospital management of casualties or casualties experiences post trauma). A flow chart providing further details of what was searched, what was found, and the number initially downloaded can be found in figure 1 below.

Figure 1: Flow chart of searches



Extracting articles: Once papers have been selected, a through reading and analysis took place of all selected papers. Details were extracted and placed into a table of results (table 1 below) and then a qualitative analysis was carried out to compare them; this was the final step of this review. This was done by becoming familiar with the content and making comparisons with each other to see what topics come up frequently, what is contradictory, what is inconsistent within the research, what methods were used and lastly where the gaps are in this area. This was done qualitatively, rather than adopting a statistical approach, such as a meta-analysis, and was justified due to the methodological differences between studies (Perestelo-Perez, 2013; Cooper, 2003) and the use of a narrative review as the process. The results were then written up and are presented in section 1.5.

Table 1: Narrative Review Table

Reference	Aim/Topic	Organization/ Participants	Type of data/analytical method	Summary of key findings
BEHAVIOUR AND MANAGEMENT OF PEOPLE IN AN EMERGENCY				
Carter & Amlot (2016)	Review of decontamination guidance to establish to what extent psychosocial aspects of casualty management have been considered within these documents.	No participants as it was a review but involved collecting literature from organizations such as Public Health England, the UK Government and Fire and Rescue Service	A collection of decontamination guidance collected for this research and 2 structured literature reviews were carried out; one to identify decontamination guidance documents for first responders, and another to identify evidence that is relevant to the understanding of the psychosocial aspects of mass decontamination	This review identified several gaps and inconsistencies between guidance and research evidence and focused on five psychosocial aspects of incident management: likely public behaviour; responder management style; communication strategy; privacy/modesty concerns; and vulnerable groups. All 5 psychosocial aspects found to be lacking in the guidance even though communication and respect for casualties' needs are critical in ensuring decontamination is completed quickly and effectively. Several areas requiring further research were identified, including effective methods for communicating in an emergency; better understanding of the needs of vulnerable groups during decontamination; effective training for emergency responders on psychosocial issues, and pre-incident public education for incidents involving emergency decontamination. The paper concludes that it is essential that the psychosocial aspects of mass decontamination are not neglected in the pursuit of solely technical solutions.
Carter, Drury, Amlot, Rubin &	This research presents a novel experimental	A self-selected sample of 111 University	Four types of data were collected: timings of the	Participants were put into 3 different categories dependent on communication strategies: 1)Theory-based communication': Health-focused explanations about decontamination, and practical

Williams (2014).	study, examining the effect of three different responder communication strategies on public experiences and behaviour during a mass decontamination field experiment.	students were the participants in this study that asked them to visualize themselves as being in an incident before undergoing a mass decontamination process.	decontamination process; observational data; quantitative and qualitative self-report data. Data was analysed in several ways, using a mixed between- and within-subjects design was used using SPSS to carry out a MANOVA. This results from the quantitative survey data was also input into a path model. The qualitative survey was analysed using a content analysis.	information; 2) ‘Standard practice communication’: No explanations about decontamination but practical information; 3) ‘Brief communication’: insufficient practical and decontamination information . The communication strategy which resulted in the most efficient progression of participants through the decontamination process, as well as the fewest observations of non-compliance and confusion, was that which included both health-focused explanations about decontamination and enough practical information (group 1). This resulted in increased perceptions of responder legitimacy and increased identification with responders, which in turn resulted in higher levels of expected compliance during a real incident, and increased willingness to help other members of the public. This supports other research and it is likely to be due to volunteers having a better understanding of what they were required to do during this condition. This is supported by the evidence from the qualitative data analysis and the observational analysis, which revealed fewer people in the theory-based communication condition reported feeling confused during the decontamination process, or exhibited confused behaviours, compared to those in the other two conditions.
Carter, Drury, Amlôt, Rubin, & Williams (2015).	Purpose of this article is to describe a visualization experiment that tests hypotheses based on the social identity approach	129 Participants took part by visualizing that they had been involved in a hypothetical incident	Data was collected from online surveys following people’s immersion in the visualization experiment. A mixed between- and within-subjects	Participants were assigned one of three groups which received different communication strategies: (1) health-focused information about decontamination, enough practical information; (2) no health-focused information, enough practical information; and (3) no health-focused information, low practical information. The communication strategy perceived as most effective included health-focused information and practical information; this resulted in the highest levels of expected compliance, mediated by social

	about the effectiveness of communication strategies during mass decontamination.	involving decontamination.	experimental design was used. Results were analysed quantitatively using a MANOVA for between group analysis and within subjects t-tests. A Path analysis was also carried out.	identity variables. Those in the theory- based communication condition reported significantly higher perceptions of responders' legitimacy, identification with emergency responders, and collective agency than those in the other 2 groups. There were also no significant differences between the standard practice communication condition and the brief communication condition.
Carter, Drury, Amlot, Rubin, & Williams (2013).	This research concentrates on responder communication during mass decontamination. This specific study applies the social identity approach to evaluating a field exercise that involved mass decontamination.	Public Health England made up part of the research team and 115 volunteers recruited by the British Red Cross who acted as simulated casualties were the participants.	Pre-exercise and Post-exercise surveys were collected from the volunteers in the multiagency live exercise. Independent samples t tests were carried out to examine individual differences. Within subjects t-tests looked at differences between time 1 (pre exercise) and time 2 (post exercise) and	Volunteers' perceptions of effective responder communication predicted increased self- reported compliance with decontamination, mediated by perceived responder legitimacy and identification with other group members. The results supported the initial hypotheses, in showing that social identity variables (perceptions of responder legitimacy, shared social identity among members of the public, and shared social identity between responders and members of the public) played a significant mediating role between perceived good communication strategies and respect for casualties' concerns about privacy, and two of the relevant outcome variables (compliance and perceptions of cooperative behaviour). As expected, legitimacy was a significant mediating variable between perceived good communication, enough practical information and level of privacy, and shared social identity between responders and members of the public. There was an indirect relationship between shared social identity between responders and members of the public and compliance. Findings show the importance of considering skills such as

			the scores measured at time 2 were input into a path analysis and a model chi-squared was used to evaluate the overall model fit.	communication, and the need to respect public concerns about privacy, and the overall social relationship between professional responders and members of the public. This relationship has been neglected until now in favour of technical solutions.
Carter, Drury, Rubin, Williams, & Amlôt (2013)	This paper aims to examine current provision for communicating with members of the public during decontamination, to facilitate the development of improved responder communication strategies	Literature Review of guidance documents, no participants but includes organizations such as Fire and Rescue, UK Government and Public Health England.	To examine the current provision for communicating with members of the public, the authors reviewed open source decontamination guidance documents for responders, as well as published reports of emergency preparedness exercises involving decontamination	The guidance documents reviewed for this paper show a disappointing lack of emphasis on communication strategies. They contain great detail about the physical and technical aspects of decontamination, but often neglect to provide responders with information about how best to communicate with the public even though Few real-life incidents requiring decontamination have been analysed, but those which have reveal that successful communication with members of the public is vital for maintaining public trust in emergency responders, and so ensuring compliance with decontamination procedures. Guidance documents reveal a perception that members of the public will be prone to panic during incidents involving decontamination and will therefore need to be “controlled”. This is of concern for many reasons including recent research argues against “mass panic” being a common reaction of the public and instead most crowds are peaceful and orderly; conflict only tends to occur when one group infringes on another’s definition of legitimate conduct.
Carter, Drury, Rubin, Williams	This paper aims to look at the issues concerning the	This research involved 13 emergency	13 semi structured interviews were carried out over the	Responders with experience of decontamination perceived non-compliance and excessive anxiety to be rare and suggested that orderly behaviour was more common. However, most emergency

<p>& Amlôt (2014).</p>	<p>assumption that the public will panic or refuse to comply in the event of a mass decontamination.</p>	<p>responders (from Fire and Rescue), six of whom had experience of incidents involving decontamination. The authors asked them, first, about their experiences of these events and, second, about their expectations for decontamination involving a large crowd.</p>	<p>telephone and a thematic framework was applied to analyse the data.</p>	<p>responders with no experience of decontamination said they expected panic and non-compliance. They therefore emphasized the importance of “controlling”, rather than communicating with, the public. Analysis of these responders’ accounts of real incidents revealed no references to panic, and few incidences of public non-compliance or excessive anxiety. Despite the finding that communication is essential to facilitate the successful management of incidents involving decontamination, the responders interviewed in this study said that they had not been trained on the importance of communicating with members of the public during incidents of this type. Responders who had no real-life experience of decontamination therefore failed to recognize the importance of communication when they were asked about incidents involving mass decontamination, despite the likelihood of communication being particularly important during incidents of this type.</p>
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<p>Carter Drury, Rubin, Williams, & Amlôt. (2013).</p>	<p>This article examines the relationship between people's positive perceptions of responding agencies' communication strategies and level of compliance and level of reassurance, in several field exercises involving mass decontamination.</p>	<p>Participants were volunteers from university, the general public, the casualty's union or amputees in action who took part in one of five emergency preparedness field exercises. The exercises were multi-agency "live" exercises led by the Health Protection Agency's Exercises and Events Team. In these exercises, the Fire Service led the mass decontamination of many notionally "contaminated"</p>	<p>Data was collected using casualty feedback questionnaires (total number of 402), that were developed to inform the evaluation of each exercise. Questionnaires contained open-ended questions about participants' experiences as well as closed questions to that casualties' responses were measured using a five-point Likert scale. Path analysis was used to examine the relationships between variables.</p>	<p>Results show a significant relationship between responding agencies' communication strategies, level of public reassurance, and level of public compliance. The relationship between responders' communication strategies and the outcome variables was partially mediated by public confidence in responders. This has many practical implications for emergency responders as focusing on communication with members of the public was found to be a key element of the decontamination process, as failure to do so could result in high levels of anxiety and low levels of compliance among those who are affected. This research highlights the importance of effective responder communication strategies and highlights the value of examining feedback from field exercises in order to facilitate a greater understanding of public experiences of the decontamination process. This article suggests that increasing casualties' confidence in responders is one of the ways in which responding agencies can use their communication strategies to improve public compliance, increase reassurance, and increase confidence in cleanliness following decontamination. This research also shows that there are significant associations between perceptions of good responder communication and confidence in responders, confidence in responders and increased compliance, confidence in responders and increased reassurance, and confidence in responders and increased confidence in cleanliness.</p>
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		simulated casualties.		
Carter, Gauntlett, Rubin, Russell, Genereux, Lemyre, Blain, Byers & Amlôt. (2018).	To generate recommendations from experts on the field for major incident management.	29 participants took part who had expertise in planning for or managing major incidents, from different organizations, including: The World Health Organization, military organizations, health protection organizations, emergency service organizations and universities.	Data collected from a workshop were participants took part in expert discussion groups, based around a series of scenarios and case studies. Case studies were selected to represent a range of scenarios that would facilitate workshop discussion around a variety of different psychosocial aspects of early incident response. Expedited framework approach was taken.	Four key themes were generated from this study: 1) it is important to understand the factors that affect public behaviour during major incidents; 2) people will want to help others during major incidents; 3) there is a lack of public understanding around different CBRN incidents and the potential of providing pre-incident public education about CBRN threats and 4) there is a need for more science, data and education about the psychosocial aspects of major incidents It was agreed by experts that a number of different things could be done to better manage people such as emergency responders communicating openly and honestly about the nature of the incident, keeping the public informed about any actions which they are taking and providing sufficient practical information to enable them to help themselves carry out the recommend actions to help themselves and others. Increasing public awareness about CBRN incidents and continuing to do more research into these areas was also found to be imperative and was agreed in the workshops. It was recommended that evidence from real incidents, exercises and experiments should be shared to ensure that planning for major incidents is based on the most up to date research.
Carter, Weston, Betts,	The current study used a series of	Participants of this study were	This study included a longitudinal focus	Results revealed that a decontamination shower was perceived to be more effective than dry decontamination methods and that a

Wilkinson, & Amlot. (2018)	focus groups to examine public perceptions of different decontamination interventions and responder management strategies	62 members of the public from the London area.	group studies that presented groups with different intervention types and management strategies in relation to decontamination procedures. Surveys were also used before, and after the focus groups as well as 3 months after. A thematic analysis was used to analyse the data and survey data was analysed by carrying out an ANOVA.	management strategy that included effective responder communication resulted in increased willingness to comply with the need for decontamination. the decontamination shower was perceived to be more effective than blue roll among participants in the two conditions in which both interventions were received. However, perceptions about the use of blue roll were more positive in the condition in which participants received more information about the efficacy of using blue roll. The desire for further treatment following decontamination requires investigation, as it could result in large numbers of people attending, and potentially overwhelming, healthcare facilities during mass casualty incidents. The reduced desire to seek further treatment in the respect management strategy condition suggests that the provision of effective communication may make people less likely to seek further treatment. It is not currently standard practice to provide follow up information after decontamination, but findings from this study suggest that development of such information could provide reassurance to those affected and reduce the likelihood that they would seek further treatment following decontamination. As expected, perceptions of the amount of information provided were more negative among participants who received the control communication strategy than among those who received the respect communication strategy. However, many of those in the respect communication strategy still felt that the level of information they had been provided with would not be enough during a real incident. This highlights how much information people are likely to need during decontamination.
Cocking,	This article looks at existing	Two interview studies were	Interview data was transcribed and	It was found that far from mass panic occurring, being in an emergency can create a common identity amongst those affected.

Drury & Reicher (2009).	psychological models of crowd behaviour specifically in relation to emergency egress behaviour, and how this could facilitate the safe management of mass evacuations.	conducted with 21 survivors of 11 different mass emergencies, where there was a real or perceived threat of danger and/or death.	underwent a thematic analysis.	A consequence of this is that people are cooperative and altruistic towards others - even when amongst strangers, and/or in life-threatening situations. The analysis has direct implications for how the Fire and Rescue Services manage mass evacuations. This research supports other research that panic is a myth as people were found to be resilient under pressure and instead were orderly and cooperative. It is suggested that this is due to developing a shared fate, common identity and sense of unity with all the other strangers involved in the incident therefore contradicting the assumption that people are selfish in emergencies. This has implications for people giving advice and instructions in emergencies as people can be trusted, especially with instructions on how they can help and so they should be given to them and not withheld in case they panic.
Cocking & Drury, (2014).	This aim of this paper is to report how four survivors' accounts of the 1989 Hillsborough disaster used the term 'panic', if it was in their account.	Four Survivors of the Hillsborough disaster	A critical discourse analytical approach was taken for this research. The data used was transcribed interviews from 4 survivors.	Findings suggest that participants used 'panic' not only to convey feelings of fear and distress but also to apportion culpability towards the actions of the police who they considered responsible for the tragedy (as indeed recent independent research has confirmed). There are inconsistencies in language used by the survivors which suggests that more work needs to be done to remove this term from social and behavioural science as survivors did not mean that it occurred. Findings conclude that people so frequently use the term 'panic' that they may use it even when rejecting its implications.
Cocking (2013).	The aim of this paper is to explore the psychological processes involved	12 survivors of the London 2005 Bombings. 6 who were directly	A thematic analysis was carried out on the interview data	Results suggest that people were able to spontaneously cooperate and were not vulnerable crowds as previously suspected. It is suggested that this is due to an emergence of a common identity that emerged between people creating and encouraging resilient

	<p>in spontaneous co-operation by casualties of mass emergencies, and to discuss the implications this may have for emergency responders.</p>	<p>affected by the blast and 6 who closely witnessed the event.</p>	<p>from the survivor's accounts.</p>	<p>and cooperative behaviour (not selfish and competitive). Figures of influence also emerged having a positive impact on other people. The notion of panic was not supported. Uninjured people at the scene can be considered zero responders as they are there helping others with mundane acts of social cohesion (not always heroic grand gestures) and are there before the first responders. These findings should be incorporated by emergency planners as neglecting the spontaneous resilience of crowds could be missing out on an opportunity to make use of a positive resource which could really help each other and the emergency services out. It is stated that crowds should be part of the solution and not part of the problem.</p>
<p>Day, Hulse & Galea (2013).</p>	<p>This research looks at data from 9/11 and has three aims to (i) calculate more fine-grained response times useful for evacuation modelling; (ii) investigate Response Phase behaviour; and (iii) see which of these behaviours and other factors</p>	<p>A total of 240 participants were included in the sample of which 119 (73 male, 46 female) evacuated from WTC1 and 121 (72 Male, 49 Female) evacuated from WTC2. Ages ranged between 22 and 68 years in both towers.</p>	<p>Quantitative and qualitative data extracted from the UK WTC High-rise Evacuation Evaluation Database (HEED) study (interview and survey data) and a mixed method analysis was carried out by doing a logistic regression and content analysis.</p>	<p>Analyses revealed that the majority of participants' response times were within 0 min to 1 min of WTC1 being hit (rapid responders) and 1 min to 4 min (moderate responders). Rapid responders were more likely to be participants in WTC2 than participants in WTC1, the tower that was currently under attack. In summary, people generally responded in a relatively short timeframe. It was also suggested that in training people response for building safety that it is reiterated that people should refrain from undertaking any unnecessary actions as this may delay evacuation, as found in this study.</p>

	predicted the response times.			
Donald & Canter (1992).	To see if victims of fires act in the same way as survivors of the same fire, or if they act fundamentally different.	Data used from survivors, friends and family of the Kings Cross Fire in 1987.	Interviews, statements, a map of bodies found, statements from forensic science and anything else given for the public enquiry into this fire were compared and examined for this study.	Results showed that those who died in the fire acted in a similar way to those that survived. Victims behaved in ways which were consistent to the normal way in which they would behave in that setting, a train station. For example, victims tried to exit the way they would usually exist that station (even bypassing other viable exits). It is discussed that because there was no panic reported that people stuck to their usual script using their place schema as the media/films etc. portray emergency's as groups of people screaming/running therefore people do not have an accurate schema for what an emergency is like. People did not feel part of a crowd or feel as though they were separate from a crowd. They reportedly acted as Individuals in a large group of people. Emergency drills recommended for establishing appropriate role and place schema and people need to be given information and managed in an emergency as their usual behaviour in an emergency can be inappropriate.
Drury, Brown, González & Miranda (2015).	The aim of this study is to look at two factors: observing others providing social support and social identification with other survivors.	1240 people affected by the 2010 Chile earthquake were surveyed in this study.	A survey of 1240 people were used and structural equation modelling with latent variables was performed on the results. Models were estimated using maximum	This study included people who faced real danger and where resources were scarce, but there was still evidence of widespread solidarity behaviours in the form of social support. There were 5 main findings: the (direct) effects of observing emotional and coordinated social support were larger than those of social identification with others affected by the disaster; social identification had important effects over and above its direct influence—both as a moderator of the relationship between observing social support on social support provided; expected support was shown to be a pivotal variable. It mediated between

			likelihood estimation and to evaluate the models' goodness of fit, chi-squared was used as a first approach.	on the one hand, observed emotional and coordinated social support and social identification and, on the other, both collective efficacy and providing coordinated social support; the type of social identification that was examined was an emergent one (i.e., with others affected by the disaster); this form of social identification was strongly associated with a sense of common fate linked to disaster exposure and the fifth was observing coordinated social support was associated not only with providing coordinated social support but also with providing emotional social support. There was also an interaction: social identification moderated the relationship between observing and providing social support. These findings serve to develop the social identity account of mass emergency behaviour and add value to disaster research by showing the relevance of concepts from collective action.
Drury, Cocking, & Reicher (2009a).	The aim of this paper is to compare high- versus low-identification mass emergency survivors to test interlinked claims that shared identity in an emergency crowd enhances expressions of solidarity and reduces 'panic' behaviour.	21 survivors from 11 different emergency events took part in interviews that were included in this study.	Qualitative (thematic) and descriptive quantitative analyses were carried out on interview data.	Crowd behaviour in emergencies has previously been explained in terms of either 'mass panic' or strength of pre-existing social bonds. This research leans towards a new approach to mass emergency behaviour, based on self- categorization theory (SCT). Accounts of unity were common throughout the whole dataset; some unity was reported as present at the start of the event, but some was only reported during the emergency itself. A pattern emerged such that those high in identification were more likely to report a shared fate than were those low in identification. Other people were even explicit that it was the shared danger of death that brought them together. These findings contradict the mass panic approach as people did not act competitively. The important ideas to come from this research is that panic is a feature of individuals not of crowds and that the mass sociality observed in emergencies is a consequence of emergent shared self-categorization rather than a

				function of pre-existing social bonds. This research concludes by saying the psychological crowd is a crucial adaptive resource for survival in mass emergencies and disasters.
Drury, Cocking, & Reicher (2009b).	Aim was to determine the relative prevalence of mass behaviours associated with either psychosocial vulnerability (e.g. 'selfishness', mass panic) or collective resilience (e.g. help, unity).	Accounts from over 90 survivors and 56 witnesses of the 2005 London bombings and data gathered on people's experiences, perceptions, behaviours, and feelings.	Interview data was collected and was analysed thematically.	There is evidence for (a) a perceived continued danger of death after the explosions; (b) a sense of unity amongst at least some survivors, arising from this perceived danger; (c) a link between this sense of unity and helping; and (d) risk-taking to help strangers. A novel explanation for this evidence of 'collective resilience' given, based on self-categorization theory, according to which common fate entails a redefinition of self (from 'me' to 'us') and hence enhanced concern for others in the crowd. In describing the London bombings of July 2005, the term 'panic' was used by several witnesses and survivors and especially by commentators who did not witness events directly. Yet the concrete and detailed descriptions of survivors' behaviours tell the opposite story. Rather than personal selfishness and competition prevailing, mutual helping and concern was predominant amongst survivors, even though most people were amongst strangers rather than affiliates. There is also evidence that this helping behaviour took place despite perceived danger rather than because people felt that they were now out of danger.
Drury, Novelli & Stott (2015).	The aim of this study was to look at what extent did social identity processes explain	48 people who attended 'Big Beach Boutique II', a free event that resulted in people being injured due to	Survey and Semi-structured interview data were collected and analysed using T-tests and mediation	Key findings of this study were that crowd participants reported feeling safe despite the perception (by others) that there was danger, there was recognition of the crowd's capacity to enhance crowd safety and reduce risk; and this adaptive capacity was linked to psychological unity. The results of Study 1 suggest that the reason that identification with the crowd enhanced feelings of safety among participants at Big Beach Boutique II was because of

	resilient outcomes in the crowd	severe overcrowding took part in a survey (study 1). 10 people responsible for crowd safety were interviewed (study 2).	analysis as well as a thematic analysis.	its effects on two relational variables: trusting others to deal with an emergency and expecting them to help. as expected, we found reference to the disaster myth of 'mass panic'. However, the usage was nuanced rather than a simple description of events. Some evidence also suggests that where professional groups saw lack of 'control' as a problem, furthering their own 'control' was their solution.
Drury, Novelli & Stott (2013).	Aim of this paper was to see if people responsible for public safety believe the myths about how casualties behave. The myths being mass panic, civil disorder and helplessness.	448 participants were included, of these 115 were police officers, 120 were sports event stewards, 46 were civilian safety professionals, 78 were students, and 89 were other members of the public.	Data was collected via surveys and were analysed quantitatively using ANOVAS.	Respondents endorsed the first two myths. However, they rejected the myth of helplessness and endorsed the view that emergency crowds display resilience. Results show clear ideological linkages between disaster myths and endorsement of paternalistic or coercive crowd management practices; and there were also clear ideological linkages between resilience beliefs and endorsement of mass-democratic crowd management practices. Disaster myths are not only factually wrong, but counterproductive as rationales for practice. It is reassuring that the professional groups sampled in this study displayed awareness of some of the genuine features of mass emergency behaviour, resilience and underestimation of danger. But it is concerning that some disaster myths are still so widely and strongly endorsed.
Drury & Reicher (2000).	The aim of the study was to explain the processes	This was predominantly an observational study of	All materials from the press, protestors and police was triangulated and	This observational study of a crowd event found that protestors acted in terms of a social identity and that their social identity changed throughout the event as people became more confrontational of the police as the event progressed. This study

	underlying psychological change among participants at an environmental protest (George Green Crowd) and the contribution that the elaborated social identity model can make.	protestors in a campaign against the building of the M11 Lin road in north-east London. Materials from the protestors, press and police was also collected. then triangulated.	subject to a thematic analysis.	supports previous literature in that changes are produced through collective action. Findings argue that in order to account for both social determination and social change in collective behaviour, it is necessary to analyse crowd events as developing interactions between groups. Furthermore it is stated that where crowd members hold a different understanding of their social position to that held by an out-group (e.g. the police) and where the out-group has the power to treat crowd members in terms of its understandings, then those members who act on the basis of one understanding of their social relations and themselves in an unexpected and novel set of social relations.
Drury & Reicher (1999)	This paper describes a study on a town hall demonstration	Interview data of 29 protestors were included in this study as well as some written accounts, newspaper accounts and video evidence.	All material was collated and underwent a thematic analysis.	Findings indicate that feelings of power increased among crowd members due to a more inclusive categorization among them, brought about by the perceived exclusion from the town hall. People felt more powerful for taking part in the protest and maintained a feeling of power following the protest too. Crowd members changed from disunited to united and passive to active, possibly due to a shared feeling of grievance and shared sense of empowerment. This therefore supports the elaborated social identity model of crowd processes.
Grimm, Hulse, Preiss, & Schmidt (2014).	This study aimed to explore survivors' emotional, behavioural, and cognitive	125 volunteers who have been involved in a disaster across Europe were included in the analysis.	The content analysis of semi-structured interviews was carried out.	While the environmental cues and the ability to recognize what was happening varied in different disasters, survivors' responses tended to be more universal across events, and most often were adaptive and non-selfish. Also, of interest was the way of reacting. Three methods were reported. First, participants reporting instinctive reactions described automatic responses. They said that they just reacted during the event; they did not think about what to

	responses during disasters.	Disasters people were involved in was either fire, floods, building collapse, terrorist attack or earthquake.		do next, nor did they reflect on emotional or cognitive states or plan their behaviour. Second, participants reporting a rational way of reacting stayed calm, and anticipated possible actions in the given situation and their consequences. Moreover, they were proactive for the most part in trying to manage an evacuation/rescue. In all, there was little difference between whether participants reported reacting in an instinctive or in a rational way. Third, participants reporting resignation were convinced that they were at the mercy of the situation and were not able to influence the outcome; hence they did not react. Many people reported altruism and helping each other. People also report feeling fear and panic the most with nervousness coming third. Physiological reactions also included palpitations and feelings of de-realization or dissociation. The responses displayed by survivors during the event most often are adaptive, to an extent, and non-selfish.
Jeon & Hong (2009).	The aim of this research was to examine the behavioural characteristics of the evacuees who survived the Daegu subway fire on February 15, 2003.	The responses of 96 survivors were analysed, excluding the 4 subway staff members who were working in the subway station at the time of the fire.	The survey and interview data from the survivors were analysed by means of descriptive statistics, a chi-squared test and independent t-tests.	This study found that the various spatial, environmental, and human factors made evacuation very difficult. When the fire broke out, 24.5% of the passengers reacted passively instead of instantly taking evacuation action; there is a statistical difference between the location of the carriage on the train and the factors that influenced each person's decision to take refuge ($\chi^2=34.186$, $df=15$, $p=0.003<0.05$). The greatest obstacles to evacuees were bad visibility (68.7%) due to smoke, and 93.3% of the subjects did not have significant help from the exit light they saw while evacuating. Finally, only 12% of the survivors evacuated through appropriate escape routes and exits. Although about one half of survivors are usually able to proceed through the desired exit without the aid of a directional sign, only 12% of the evacuees

				<p>could exit through an appropriate escape route at the time of the fire. Moreover, when the fire broke out, the passengers reacted passively by either waiting for help or by contacting someone outside for help instead of instantly initiating evacuation actions for themselves. Therefore, authors suggest that it is necessary to make announcements that can minimize panic and, at the same time, give passengers clear evacuation instructions, telling them what they should do instantly in order to save themselves. In addition, since crowd psychology conditions are liable to cause passengers to react to an emergency rather passively, the general public should be provided with systematic education and drilling that would teach them how to escape actively and safely in the case of an emergency. However, the initial evacuation was delayed because most of the evacuees waited for the announcements, and initiated actions only when forced by the smoke from the fire to do so. By the time the evacuees started to escape, the fire had quickly advanced and the surrounding conditions were negatively aggravated for safe evacuation. claimed the highest number of casualties in the history of subway use in South Korea.</p>
Leach & Ansell (2008).	This looks at a type of cognitive impairment when it comes to a field survival environment. selective attention, attentional switching, auditory-verbal	People taking part in this experiment come from the Royal Air Force. 14 Royal Air Force aircrew who were participating in a military survival exercise and a	Data were obtained from the experimental group at 3 different times during their 2-week survival training course, the control group was tested in a classroom. All tests were analysed	Findings suggest that environmental duress leads to a temporary restriction in attentional control that can persist for up to 3 days. Such a restriction in controlled attention hinders people from interfacing flexibly with their environment in a goal-directed manner. This makes it more difficult for the individual either to maintain task-relevant information in an active state in memory, or to suppress unwanted environmentally triggered stimuli from entering working memory. It is noticeable in this study that sustained and selective attention, which both involve active suppression of distractors, are more vulnerable to impairment than

	working memory and sustained attention were all tested.	control group comprised of 12 males and 2 females RAF aircrew who were not undergoing survival training, with a mean age of 25.31 years (SD=1.93).	using a two-way mixed ANOVA with one between factor (group) at two levels (field, control) and one within factor (day of testing) at three levels (session 1, session 2, session 3). Descriptive statistics were given.	either auditory-verbal working memory or attentional switching. This reflects a diminished working memory capacity resulting in difficulty in preventing attentional focus from being captured by environmental distractors. When these goal states are not actively maintained by working memory then behaviour becomes disorganized, perseverative or otherwise inappropriate. the duress of a survival environment produces impairment in selective and sustained attention which together suggests dysfunction in controlled attention. This form of cognitive impairment makes flexible interaction with the survival environment difficult and the victim's behaviour becomes dominated by environmental cues at the expense of wilful, goal-directed survival behaviour. The often-witnessed result is of a victim who is cognitively unable to aid his own survival. This would begin to answer at least one anomaly that exists in survivorship: why so many people perish when there is no need.
Leach (2004).	The aim of this paper was to identify the possible factors underpinning 'freezing' behaviour in disaster victims.	Review of 11 previous accounts from survivors of maritime and aircraft disasters and the author interviewed an additional 19 survivors of 3 shipwrecks and 4	Witness testimonies, survivor debriefings, and official inquiry reports from shipwreck and aircraft emergencies were analysed for their behavioural content.	Results: It was found that 'freezing' behaviour was a frequently cited response by witnesses to a disaster. 'Freezing' causes evacuation delays which increase the danger, establishing a closed loop process and further extending evacuation delays. This behaviour can be accounted for by considering the temporal constraints on cognitive information processing in a rapidly unfolding, real-time environment. This freezing response has been ascribed to various causes: shock, paralysis, horror, etc. These, however, are descriptions rather than processes and the question remains concerning the nature of the mental process of 'freezing' in the face of danger. If this impairment can be modelled, then predictions about behaviour can be made and countermeasures devised to assist in the saving of lives. The reports and survivor

		aircraft emergencies.		interviews all described behaviours consistent with previously reported natural histories of disasters at both the group and the individual levels. Responses to unfolding disaster can be divided broadly into three groups. In the first group, between 10-15% of people will remain relatively calm. They will be able to collect their thoughts quickly, their awareness of the situation will be intact, and their judgment and reasoning abilities will remain relatively unimpaired. They will be able to assess the situation, plan, and act on it. The second group, comprising approximately 75% of the population, will be stunned and bewildered, showing impaired reasoning and sluggish thinking. They will behave in a reflexive, almost automatic manner. The third group, comprising 10-15% of the population, will tend to show a high degree of counterproductive behaviour adding to their danger, such as uncontrolled weeping, confusion, screaming, and paralyzing anxiety. Human responses to unfolding emergencies and the tendency to freeze can be understood in terms of neurocognitive function and the time required to process the several steps between perception and appropriate action.
Levine, Prosser, Evans & Reicher (2005).	Two experiments exploring the effects of social category membership on real-life helping behaviour are reported. In Study 1, inter-group rivalries between soccer	Forty-five male students were from Lancaster University and aged between 18 and 21 years. All participants were self-identified Manchester United FC	Participants were asked to complete surveys, but an experiment was set up (participants unaware) were a confederate fell (holding either the same team t-shirt or a rival team or an	An injured stranger wearing an ingroup team shirt is more likely to be helped than when wearing a rival team shirt or an unbranded sports shirt. Helping is extended to those who were previously identified as out-group members but not to those who do not display signs of group membership. Taken together, the studies show the importance of both shared identity between bystander and victim and the inclusiveness of salient identity for increasing the likelihood of emergency intervention. The results of this experiment suggest that shared category membership is important for helping others. It is when participants can see the signs of

	<p>fans are used to examine the role of identity in emergency helping. In Study 2, a more inclusive social categorization is made salient for potential helpers.</p>	<p>supporters. Participants received no payment for taking part.</p>	<p>unbranded t shirt) and observers watched the response of the participant. An ANOVA was used to analyse findings.</p>	<p>common group membership in a stranger in distress that intervention is most likely. When the victim is wearing the Manchester United shirt, participants' behaviour shifts from noticing that the victim needs help but not helping to stopping and asking if the victim needs help. There is, however, no evidence of outgroup derogation. Participants are not less likely to help the victim when he is wearing the Liverpool shirt than when he is displaying no signs of group affiliation. Out-group derogation is of course something that might have been predicted given the strength of feeling between these rival soccer teams. the experimental work in this article provides strong evidence for the importance of a social- identity-influenced approach to emergency intervention. In particular, the importance not only of category salience but also of category inclusiveness suggests that a social identity theory (SIT)/SCT-influenced approach can make a significant contribution to the helping literature. This SIT/SCT perspective suggests that the debates around helping should be shifted from the question of whether collective categorization influences helping to a focus on the conditions under which people come to define themselves collectively. It is by exploring the social meanings of the intervention situation in terms of the way bystanders make sense of category relations in social contexts that new insights about helping behaviour will emerge.</p>
<p>McConnell, Boyce, Shields, Galea & Hulse. (2010).</p>	<p>The UK High-rise Evacuation Evaluation Database (HEED) study aimed to capture and collate</p>	<p>9/11 survivors who evacuated the WTC were included in this research.</p>	<p>A data elicitation tool designed for the purpose comprised a pre-interview questionnaire</p>	<p>Most participants in the three floor clusters indicated that they were located at or around their workstations at the time of impact (n=78, 61.9%), with the remainder being in various other locations including others' workstations/office, lobby, elevator, etc. Overall, close to 97% of participants across all floor clusters indicated that they felt the impact. this incident is not considered representative</p>

	<p>the experiences and behaviours of WTC evacuees in a database, which would facilitate and encourage future research, which in turn would influence the design construction and use of safer built environments. Part of a series of papers.</p>		<p>followed by a one-to-one interview protocol consisting of free-flow narratives and semi-structured interviews of WTC evacuees. Data coded into SPSS as categories or activities.</p>	<p>of a typical fire in a building, as fires in buildings were understood prior to 9/11, i.e. this was a large-scale terrorist attack on high-rise buildings using large commercial aircrafts. It is important to note that at no time were any fire alarms sounded in wtc1. It is interesting to note that, despite the strong stimuli received, only 10% of the sample-initiated evacuation as a first action. Not surprisingly, this was more evident in the upper floor cluster. However, if we also consider the activities that suggest an intention to evacuate, i.e. 'collected belongings' (17.5%), 'provided verbal instruction to evacuate' (15.1%), and pursued 'act of normal routine prior to evacuation' (0.8%), it is evident that close to 45% of participants immediately pursued evacuation-related activities, even though some of these activities inevitably delayed their evacuation. The results indicate that the most prevalent cues received by participants in all floor clusters were felt and heard the impact. It was found that significantly more participants in the upper floor cluster experienced seeing fire/smoke internally and hearing the impact in comparison with those located in the central floor cluster. Despite the magnitude, volume and intensity of the cues received, only 10% of the sample-initiated evacuation as an initial response. However, analysis suggests that over 45% of participants immediately initiated activities in preparation for evacuation.</p>
<p>Peacock, Averill, & Colagrossi (2013).</p>	<p>This paper describes the occupant evacuation of World Trade Centre (WTC) 1</p>	<p>Over 1,000 new interviews with survivors (including 803 tele-phone interviews, 225</p>	<p>Events are described in detail, in chronological order from the</p>	<p>Most survivors in WTC 1 felt the building move from the airplane impact (63%, n = 440) and that's how they became aware something was wrong. For others (30%) they heard something and 7% either smelt jet fuel, fell or was warned by somebody else. Activities reported to have been undertaken before evacuation (%-doesn't add up to 100 as people could chose more than 1. Talked</p>

	and WTC 2 on September 11, 2001. Multiple	face-to-face interviews, and 6 focus groups); over 700 published interviews; 9-1-1 emergency calls; transcripts of emergency communications, historical building design drawings, memoranda, and calculations; formal complaints filed with the Occupational Safety and Health Administration were used.	collated material and data.	to others (70), Gathered personal items (46), Helped others (30), Searched for others (23), Talked on telephone (16), Moved between floors (8), Fought fire or smoke (6), Shut down computers (6), Continued working (3) and Other activities (25). The highest percentage of information sought and received was what had happened, followed by instructions to leave, instructions to stay and lastly other information including what to do. Sources of help in order were: Co-worker, Police officer/firefighter Floor warden, Manager/supervisor, Stranger. For survivors of WTC2 they were made aware that something was wrong by Heard something (boom, crash, explosion, blast, roar, rumbling)-51%, Saw something (smoke or flames, plane, debris)-19%, Warned by someone around me-13%, Felt something (building moving, impact, shaking, swaying)-11%, Other, including contacted via phone, lights flickered, news media-7%. Activities commenced prior to evacuation include: Talking to others (75% n=363), Gathered personal items (57%), Helped others (34%), Searched for others (32%), Talked on telephone (16%), Moved between floors (8%), Shut down computers (7%), Continued working (6%), Fought fire or smoke (1%), Other activities (20%). The same information was sought and received: Information about what had happened, instructions to leave, instructions to stay, other. The sources of help prior to evacuation were (in order of prevalence) Co-worker, Manager/supervisor Floor warden, Other/don't know, Police officer/firefighter, Stranger.
Pearce, Rubin, Selke, Amlot,	The aim of this paper was to assess public intentions, beliefs and	Members of the public took part in this research.	Logistic regressions were used to analyse data from	This study had three stages: 1) focus groups which identified perceptions of and reactions to a covert radiological device. The incident was introduced using a series of mock newspaper and broadcast injects to convey the scenario; 2) outcomes of these

Mowbray & Rogers (2013).	information needs in the UK and Germany in response to a hidden radiological exposure device.		predominantly focus groups but also surveys.	focus groups were used to inform national telephone surveys and 3) Focus group and survey results were used to develop video and leaflet communication interventions, which were then evaluated in a second round of focus groups. In the first two stages, misperceptions about the likelihood and routes of exposure were associated with higher levels of worry and greater likelihood of engaging in behaviours that might be detrimental to ongoing public health efforts. The final focus groups demonstrated that both types of understanding are amenable to change following targeted communication. Therefore, should terrorists succeed in placing a hidden radiological device in a public location, then health agencies may find that it is easier to communicate effectively with the public if they explicitly and clearly discuss the mechanisms through which someone could be affected by the radiation and the known geographical spread of any risk. Messages which explain how the risk from a hidden radiological device ‘works should be prepared and tested in advance so that they can be rapidly deployed if the need arises. In addition to the potential physical health effects on those who have been directly exposed, a terrorist attack using a RED has the potential to cause fear and behaviour change among the wider population. The results from the first round of focus groups and surveys suggest that such effects would be largely due to concerns and misperceptions among the public about their likelihood of being exposed to radiation.
Porter & Leach (2010).	The sub-components of executive function during an intensive military survival	All participants were RAF aircrew. The experimental sample	Data was collected from participants completing a series of 5 experimental tasks (e.g. Stroop	Compared to a control group the survival course participants showed significant impairment in the incongruent condition of the Stroop task; the mean repetition gap and adjacent letter pair components of the random letter generation task; and the planning and action components of the Tower of London task. No

	exercise was tested to see how people can respond maladaptively.	comprised a total of 58 participants. The controlled group consisted of 20 people.	test, dual task, verbal fluency task) and comparing the results between RAF aircrew and a control group.	impairment was found in dual-task performance nor in verbal fluency. The pattern of the data suggests that the maladaptive behaviour frequently observed in survival incidents may be explained by dysfunction in the supervisory system- contention scheduler interface. Data from both the Stroop and the RLG tasks suggest that the processes involved in inhibiting pre-potent responses are impaired during exposure to survival conditions although it is difficult to determine whether the impairment lies in the ability to suppress a pre-potent response or in the ability to initiate the correct response.
Power, Symons, Carter, Jones, Amlôt, Larner, Matar, & Chilcott (2016).	The aim of this paper was to explore US fire departments' decontamination practices and their preparedness for responding to incidents involving mass casualty decontamination.	Public Health England research which involved members of various US Fire departments.	An online study consisting of 31 questions was collected from 68 members of various US Fire Departments, with 42 completing the survey, findings given descriptively	This paper predominantly looked at the differences in procedure for the mass decontamination, however, the section on management of casualties revealed that 19 out of 25 respondents (76%) reported that they have no fixed rules for how casualties would walk through the shower corridor. Five respondents (20%) reported that casualties would walk through the shower individually, and 1 respondent (4%) reported that they did not know whether casualties would be asked to walk through the process individually or in groups. 8 out of 25 respondents (32%) reported that they would use a bullhorn or other type of public address system to direct casualties through the decontamination process. 7 respondents (28%) gave details of the instructions they would provide to casualties during the decontamination process. The most commonly reported instructions included asking casualties to walk slowly through the decontamination corridor, extend arms, and turn occasionally.

Rogers, Amlot, & Rubin (2003).	The aim of this study was to explore levels of public knowledge, information needs, and intended behavioural reactions to an attack involving a dirty bomb.	22 people took part in phase 1 focus groups and 64 people took part in phase 2 of this research. All participants were members of the public from all demographic categories.	This focus group study involved a scenario of mock news in the first phase of the study and then focus groups in the second phase were ran using a leaflet created. Data from these focus groups were then coded underwent an interpretative phenomenological analysis (IPA).	The provision of information given on the leaflet created increased the perceived credibility of official messages and increased reported levels of intended compliance with advice to return to normal/ stop sheltering, attend a facility for assessment and treatment, and return to a previously contaminated area after decontamination of the environment has taken place. Research concludes that should a real attack with an RDD occur, having pretested messages available to address common concerns and information would help the public in an attack. The study has shown that compliance with recommended behaviours could be improved through effective communication about a CBRN incident, if the information presented is consistent and clear, addresses the knowledge gaps and information needs of the intended audience, and is delivered through a variety of sources (e.g., leaflet, TV, radio, newspaper, internet).
Zimmerman & Sherman (2011).	Purpose of this study is to see how people left the WTC following the 9/11 attacks as this can give an indication of casualty behaviour and can help in future planning for emergency evacuations.	A convenience sample of 1,444 persons who survived the World Trade Centre (WTC) attacks on September 11, 2001 were surveyed.	Survey results from this study were the survey data were examined initially by creating frequency distributions of all study variables. Where appropriate the parametric t-test was used to compare groups and the McNemar's	Many people indicated they did not leave immediately because they had no information about where to go or what services would be available to them. The results of the survey showed that about half of the respondents left the area immediately and half did not. Those who did not leave the area immediately indicated as their reasons that they stopped to see what was happening and asked for information or assistance. Almost three-quarters of the respondents who indicated not leaving the area immediately indicated stopping to see what was happening and/or getting more information or assistance. Another reason for not leaving immediately was seeking out other people: over half of those who indicated not leaving the area immediately indicated looking for friends or co-workers. Those with fire training indicated that they

			Q statistic (to assess the change with dichotomized [nominal] variables) was used for comparing changes over time.	left significantly more immediately than those who did not indicate such training. The existence of congestion, debris, and confusion was indicated by roughly two-thirds of the respondents as hindering their ability to leave the area. Communication is central to the provision and effectiveness of these services at many different levels. Immediate communications are necessary for people to be able to identify and confirm the nature of the threat, some survivors indicated waiting around for this information.
PREPARING FOR AN EMERGENCY				
Adams, Karlin, Eisenman, Blakley & Glik (2017).	To assess how people participated in the 'ShakeOut' campaign which is the largest earthquake preparedness drill in the history of the United States.	Participants for this study were 2052 members of the general public in California five months after the launch of the Great Southern California ShakeOut drill.	An online cross-sectional survey was conducted.. Descriptive statistics and a factor analysis were carried out to identify categories of behaviour from the different shakeout activities.	During the drill participants were not simply encouraged to plan for an earthquake by having household supplies or a family communication plan but was also trained to practice specific behaviours in direct response to an earthquake. It was found that the main behaviour practiced was the "drop, cover and hold" and the least common activity was to join the advertised Myspace or Facebook account. Approximately a third of people took part in an interpersonal activity by teaming up with others or attending a meeting and approximately 10% played a game offered to prepare. People more likely to use preparing as an in-person interaction than to use the newer method of social media to connect with others. Analyses found strong associations between self-efficacy and the most active, community-oriented clusters, supporting the finding that self-efficacy goes beyond influencing household preparedness by contributing to broader community resilience. Survey was only filled out by relatively motivated people as it only had a 13% response rate and participants were paid \$100 to complete survey. Recommended that national campaigns without variation end.

Adeola (2009)	Focuses on Hurricane Katrina and looks at whether prior experience and duration of residency influences subsequent behaviour when there is a threat of a natural disaster.	FEMA, Red Cross and the United States Army Corps of Engineers (USACE).	15-page, 54 item Survey was completed by 598 people, field observations and participants were included form different rescue and evacuation centres in America. A log regression analysis was the analytical method.	People reported the event had a negative impact on quality of life. Experience came second to family persuasion in relation to evacuation. People did underestimate Katrina, poor instructions in evacuation played a part by government. people more inclined to act if the threat was perceived is credible, trusted and had clear instructions of what to do, were and when to go. Still gaps in our understanding of all the factors associated with the behaviour of people when it comes to preparing evacuation and adaptation during disasters. Hurricane Katrina victims only, no in-depth or qual analysis on interview data collected.
Becker, Paton, Johnston, Ronan & McClure (2017).	Explores the impact past experiences have on earthquake preparedness.	48 participants from 3 different towns in New Zealand took part in this study.	A qualitative approach was taken using a symbolic interactionism perspective and a grounded theory approach to analyse the interview data collected.	Four categories relating to prior experience were identified: indirect disaster experience, vicarious disaster experience, vicarious experience and life experience. It was found that several experiences from each category was drawn upon when making judgements about risk and preparedness. This is important as not everybody will experience a major earthquake in their lifetime and so it therefore it is suggested that not just people's direct experiences with earthquakes that affect their likelihood of preparing as previous research suggests. This research also found that previous experience has seven different influences on the preparedness process including: prompting thinking and talking; raising awareness and knowledge; helping individuals understand the consequences of a disaster; developing beliefs; developing preparedness; influencing emotions and feelings; and prompting community interaction on disaster issues.

<p>Donahue, Eckel & Wilson (2014).</p>	<p>Aim is to review the literature on preparedness to see the gaps in our understanding of when and how people react to the threat of disaster and compare this to a 4-year national study that was held to see if government understand how people prepare.</p>	<p>Literature and people from America taking part in national surveys.</p>	<p>Literature is 'pooled' together as is data from the surveys and compared. Quantitative statistics are then carried out to predict the likelihood of correlation between individual differences, demographic characteristics and level of preparedness.</p>	<p>Results support previous research, in that individual preparation is correlated with demographic characteristics but what was also found is people prepare because they also have an interest to do so, especially if they have incentives to do so and bigger consequences. Those who do prepare are informed and seek out information that they need to know and those who are not prepared do not know what to do which insinuates that the government information does not reach all people, only those who seek it out. Actual experience of a disaster does not make a difference on level of preparedness. Public officials think people are more unprepared than they are. People also do not want to invest time and energy as they do not think a disaster will affect them personally and so it is suggested preparedness programmes have a 'just in time' preparedness instead of a 'just in case'. Lastly, it was also found that public officials have a different view of disaster preparedness from people.</p>
<p>Keenan & Hanson (2013).</p>	<p>This research hypothesized that conversations about terrorism vary by gender and place, specifically the home and workplace.</p>	<p>Drawing on data from 93 interviews with householders in Boston.</p>	<p>Qualitative research design undertaken on the interview data.</p>	<p>Results show that family networks generated discussions of home preparedness, whereas workplace networks engaged a wider variety of topics; Findings also indicate that women discussed terrorism more frequently and in greater depth than did men; and lastly women heard more preparedness messages for the home than did men, whereas men undertook preparedness activities external to the home (such as developing plans that included family meeting places). The study has illustrated how the intensity and quality of one's affect pool varies by both place and gender, and this in turn affects the type of information that one discusses with social contacts and how one does that.</p>

Kim & Zakour (2017)	This study examined factors associated with disaster preparedness among older adults, with special attention paid to demographic characteristics, social support, and community participation.	A total of 719 adults aged 55 years and older were used for this study.	Logistic regressions and exploratory factor analysis were carried out on the telephone surveys completed.	The results of this study demonstrate that, overall, older adults are underprepared for emergencies. Results indicate that individuals who have higher levels of social support and more connections to community organizations are more likely to be prepared for disaster-related emergency situations. In another model, using resource preparedness as the dependent variable, an interaction effect between social support and income was found. Overall, higher income and higher informal support are related to a higher level of resources for disaster preparedness. However, the relationship between income and disaster preparedness is much stronger for those sub-groups receiving more informal support. The findings of this study expand knowledge regarding issues of disaster preparedness among older adults and demonstrates the importance of social resources and networks. The findings presented here also suggest that, for older individuals and their households, informal social support and community membership are important predictors of emergency preparedness. As expected, income, education, and health condition were associated with the level of resource preparedness, with individuals having less income and less education being less likely to report being prepared with resources for a disaster, in line with previous studies.
Ntontis, Drury, Amlot, Rubin, & Williams (2018).	Residents experiences of the floods were investigated.	17 residents of York, United Kingdom, who were involved in the 2015–2016 floods took part.	Thematic and discourse analysis was used to analyse the interview data.	This study shows how shared community identities emerged (e.g., because of shared problems, shared goals, perceptions of vulnerability, and collapse of previous group boundaries) and show how they acted as a basis of social support (both given and expected). There is some evidence that the nonaffected community mobilized in support of the affected after the waters had receded, which is crucial in mitigating the impact of secondary stressors and in assisting with the long-term recovery. The emergent sense of

				<p>togetherness was sometimes evident through participants reference to we, reflecting novel extended group boundaries within the geographical community. There was evidence that people identified with others in terms of a shared community identity, based on common fate. The present analysis extends findings on the emergence of identities by shedding light on the processes through which indirectly and nonaffected residents come to share a sense of social identity with the affected. Interviewees said that emotional support was offered either directly or came through indirect empowerment during resident meetings, and we can perhaps assume that the longer the sense of community is sustained through community flood groups, the longer people will feel that their voice is heard. Residents also felt more confident about the future.</p>
<p>Page, Rubin, Amlôt, Simpson, & Wessely (2008)</p>	<p>A longitudinal study design was used to assess individual preparedness within the same sample of Londoners at 2 points in time: immediately after the 7/7 bombings (T1) and 7 to 8 months later (T2).</p>	<p>A demographically representative sample of 1,010 Londoners participated in a phone interview at T1. Subsequently, at T2, 574 of the same people participated in a follow-up phone interview.</p>	<p>Comparisons were made using t-tests and a logistic regression was also carried out.</p>	<p>The overwhelming majority of respondents (97.0%) felt that the emergency services would cope well in the event of another terrorist attack on London. At T1 51% of Londoners had made 4 or more relevant emergency plans; 48% had gathered 4 or more relevant supplies in case of emergency. There was evidence of increased preparedness at T2, by which time 90% had made 4 or more emergency plans. Ethnicity, low social status, and having felt a sense of threat during the bombings predicted increased preparedness between T1 and T2. Women in general, and women of low social status, perceived themselves to be unprepared in the event of a future terrorist attack. In summary, Londoners show moderate levels of emergency preparedness, which increased following the London bombings. Although we cannot know whether this association is causal, the prospective nature of the study increases the likelihood that it is. Evidence was found of</p>

				<p>moderate levels of emergency preparedness among Londoners, with 51% having in place at least 4 out of 7 suggested emergency plans and 48% having gathered at least 4 out of 5 recommended emergency supplies at the first survey. Only a small proportion (8%) had made no preparations at all. The bombings appear to have increased Londoners' preparedness, but receiving the Preparing for Emergencies booklet in 2004 had little effect on gathering emergency supplies. Feeling threatened on the day of the London bombings was associated with increased preparedness in the ensuing months, while important demographic associations with increased preparedness may be due to increased feelings of vulnerability amongst socially disadvantaged groups.</p>
Paul (2012).	SIDR victim's response to cyclone warnings and evacuation orders to explore why some people did and did not comply with orders.	SIDR Victims	277 survivors took part in this survey, of which the findings were put through a multivariate analysis.	more than 75 percent of all respondents were aware of the cyclone warnings and evacuation orders before Sidr's landfall which the Bangladesian government put out 5 days prior to the cyclone. It seems there was a 33% success rate of these warnings, which is not acceptable. Findings show that trust in warning messages was the most important determinant in the decision to seek refuge in safer shelters, followed by distance to nearest shelter and annual level of education. It is suggested that trust can be improved by arranging regular cyclone drills and meeting with potential victims during pre-cyclone periods in addition to new shelters being built.
Rustemli, & Karonci (1999).	Explores relations of cognitions and preparedness behaviour to a set of personal, residential and	Victims of earthquake	Survey 16 months after earthquake in Turkey completed by 461 people. A multiple regression	Damage anticipation related to height/strength of residence, control and trust in officials NOT experience of incidents. Cognitions were no different in people with sever past experiences. Significant but small correlation between earthquake expectation and number of deaths/ injuries in families and belief in damage mitigations measures and the amount of material lost in the last

	experimental variables.		analysis was the analytical method.	earthquake. Residents more concerned with town rehabilitation. Regression analysis indicated the intention to adopt damage mitigation related to fear and perceived control differing to protection motivation theory by Rogers as financial income or capability did not predict damage mitigation, but fear did. Inconsistencies in findings between past experiences, hazard cognitions and behaviours.
Tennyson & Diala (2016).	The aim of this study was to investigate the problem with more than 50% of Americans admitting they are not prepared for natural disasters before they occur.	The sample for this study was 24 purposively selected Hurricane Sandy survivors in New York and New Jersey who were 25 years of age or older.	Qualitative single case study, using an interview comprising of 10 questions to collect data and a thematic analysis to collate and analyse the data.	Results show that a) individuals may perceive they are prepared for natural disasters although their preparedness actions are not consistent with emergency services guidelines for preparedness, b) communications using multiple media are valuable for notifying the public about the approach of a storm, c) communications about the escalation of a storm may signal the strength of the storm and motivate individuals to prepare, d) living through natural disasters is an emotional experience from which others may learn, and e) natural disaster survivors may learn lessons from their experience that changes their future preparedness behaviour and provides the opportunity for others to learn.
Wirtz & Rohrbeck (2017).	The aim of this research was to develop a unified social cognitive framework for understanding peoples' preparations for health safety risks, focusing on	2315 participants were taken from the National Survey of Disaster Experiences and Preparedness. Participants reported preparedness	Using a logistic binomial hurdle statistical model, number of actions taken because of terrorism concerns was regressed on terrorism-related vulnerability, severity, response	This research draws on Social Influence Theory and Protection Motivation Theory. After controlling for demographic variables, both taking any preparedness action due to terrorism concerns and the number of preparedness actions taken due to terrorism concerns were positively related to terrorism-related informational social influence, response efficacy, and self-efficacy; effects of terrorism-related vulnerability and severity appraisals were much smaller. Compared to cognitive factors, terrorism-related informational social influence had a substantially larger effect on taking any action. Findings conclude that Terrorist-related

	terrorism-related cognitive and social influences.	actions they had taken since 2001 due to terrorism concerns, their appraisals of terrorism-related threat and coping, and whether they knew others who had taken preparedness actions because of terrorism.	efficacy, self-efficacy, and informational social influence.	informational norms were more salient than cognitive factors in influencing peoples' decision to prepare for terrorism. Participants who knew someone who had taken one or more emergency preparedness actions because of terrorism were significantly more likely to take any preparedness action, and to take more preparedness actions, themselves. This study's findings that social influence may be more salient than cognitive appraisal factors in predicting preparedness initiation are of potential value both to practitioners developing effective intervention models and to theorists designing comprehensive models of individual differences in health safety preparedness.
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1.5 Narrative Literature Review results

In total, 45 full text research articles were included for this review of these, 33 related to the first two parts of the research question: 'how are casualties currently managed in major incidents? What behaviour do casualties exhibit in major incidents?'. The remaining 12 studies related to the last part of the research question which was: how do people currently prepare for major incidents? In total there were 14 282 participants included in the 45 studies. The following summary of the review will be presented in 2 separate sections below before giving an overview of the overall methodologies used.

Section 1: 'How are casualties currently managed in major incidents? What behaviour do casualties exhibit in major incidents?'

Of the 33 papers included that relate to the behaviour and management of casualties several commonalities have emerged including topic, method used and findings. These make up four major themes that are 'managing the communication given to casualties', 'managing crowd/ casualty behaviour', 'myths and models of casualty behaviour' and lastly the 'impairments existing with casualty behaviour'. These have several sub-themes which will be detailed below.

The majority of studies focused on previous disasters, including 9/11, the 7/7 bombings, the Kings Cross Fire (k=15), the second most common topic of research was mass decontamination (k=9), a number of papers looking at crowd behaviour (k=5), a couple of papers looked at cognitive impairments (k=2) and a couple of papers focused on public opinion regarding a hidden radiological exposure device or a dirty bomb (k=2). The method of data collection for these group of studies were interviews (k=11), followed by surveys (k=10) and with some papers including a mixture of them both (k=3). The remaining studies collected data from focus groups (k=4), experiments (k=3), literature reviews (k=2) or from an observational study (k=1). The majority of studies included participants that were survivors of previous disasters or emergencies (k=15), or members of the public including students (k=10) and the remaining papers that included participants involved professionals such as stewards, fire departments, exerts in the field or the RAF (k=6).

Managing communication

The first theme of managing communication given to casualties has the most papers in it as most papers (15 out of 33) which covered casualty behaviour and/or the management of casualties included something about communication. This theme covered several areas related to communication, these make up the sub-themes and are (in order of prevalence): the necessity of communication (9 out of 33 papers included); communication strategies (4 out of 33 papers) and lastly a lack of communication (3 out of 33 papers).

The necessity of communication explains how essential communication is for casualties for multiple reasons. Some research indicates that by communicating effectively to casualties you can receive optimum compliance during a decontamination procedure and can reduce the desire for individuals to seek further treatment following decontamination (Carter, Weston, Betts, Wilkinson & Amlot, 2018b), therefore it would save numerous people seeking unnecessary treatment and blocking up hospitals, clinics and helplines. Other research has shown that having pretested messages available to address common concerns and to provide the public with precise and clear information, in relation to an attack involving a dirty bomb or radiological terrorism, could help and would increase compliance (Rogers, Amlot & Rubin, 2003; Pearce, Rubin, Selke, Amlot, Mobray & Rogers, 2013). This research therefore highlights how communication could help the emergency services to manage the public if they had pretested messages and knew what exactly what casualties want to hear in order to guarantee compliance.

Other research highlights how important communication is during emergencies, in order to announce that it is an emergency and to direct people towards close exits, this type of communication could ensure people are given clear evacuation instructions and do not act passively waiting for somebody to help that was the case with two research studies on underground fires (Donald & Canter, 1992; Jeon & Hong, 2009). Similarly, research into the evacuation of 9/11 showed that some people did not leave as they were waiting for instructions to either leave or stay or just awaiting more information about what happened before evacuating. This waiting could have caused further deaths by staying in a smoky and dangerous environment; however, it highlights show people

feel a need to receive information (Peacock, Averill & Iculigowski, 2013; Zimmerman & Sherman, 2011).

Additionally, one study also highlights how communication is a necessity as it can assist people who may have any cognitive impairments and are displaying disorganised behaviour due to duress of the survival environment that makes flexible interaction difficult; therefore, communication is essential to give clear instruction/guidance to people (Leach & Ansell, 2008). Furthermore, John Leach (2004) also did research into why people 'freeze' during emergencies and found that it can lead people to experience evacuation delays that in turn increases danger, therefore people not experiencing this could direct others into taking appropriate action as they might not be able to think for themselves.

Communication strategies was a topic discussed in several papers (Carter, Drury, Amlot, Rubin & Williams, 2014a; Carter, Drury, Amlot, Rubin & Williams, 2015; Carter, Drury, Amlot, Rubin & Williams, 2013a; Carter, Drury, Rubin, Williams & Amlot, 2013c). All of which are specifically related to communication strategies that would be best for the process of decontamination but nevertheless they do have interesting findings. Two studies have shown that the strategy that results in the most efficient progression of participants through the process was a strategy that contained both health-focused information and practical information on what they should do (Carter et al, 2014a; Carter et al, 2015). In addition to this, positive perceptions of responder communication has been found to improve the social relationship between professional responders and members of the public as it is felt that people's privacy have been respected and a shared social identity is created which in turn means people who have experienced this communication strategy want to be cooperative and compliant (Carter et al, 2013c). It has also been found that failure to communicate effectively to members of the public during decontamination can lead to high levels of anxiety, instead of reassurance if there is an effective responder communication strategy (Carter et al, 2013c). This group of research indicates that it is better to ensure casualties have a better understanding of what they are required to do, and you are less likely to have people who are non-compliant or confused. These group of studies focused mainly on mass decontamination and so it would be interesting to see if these strategies can be applied at incidents other than those that involve people undergoing a decontamination.

Lack of communication is also a common theme throughout the research with great contribution from one group of researchers. This research has indicated that communication is an important psychosocial aspect of decontamination, but it often neglected in the guidance published in favour of technical solutions (Carter & Amlot, 2016; Carter, Drury, Rubin, Williams & Amlot, 2013b). This guidance is what responders may rely on and so it is not informing responders with how to best communicate with the public. It is also evident in the parts of the guidance documents that do mention how to manage the public, specifically during decontamination, they are not accurate as they have an expectation of the public panicking during incidents (Carter et al, 2013b; Carter, Drury, Williams & Amlot, 2014b). Therefore, there is a lack of information on how to communicate with members of the public who are peaceful and orderly, that more research points towards (Carter et al, 2014b).

Managing Crowd/Casualty Behaviour

The second theme of managing crowd behaviour has 14 papers included in it from a possible 33; 10 of these papers look at crowd/casualty behaviour in the context of mass decontamination (Carter et al, 2016; Carter et al, 2014a; Carter et al, 2015; Carter, et al, 2013a; Carter, et al, 2013b, Carter et al, 2014b; Carter et al, 2013c; Carter et al, 2018a; Carter et al 2018b; Power, Symons, Carter, Jones, Amlot, Larner, Matar & Chilcott, 2016) and 4 of these papers look at crowd/casualty behaviour in relation to evacuating from emergencies (Cocking, Drury & Reicher, 2009; Day, Hulse & Galea, 2013; McConnell, Boyce, Shields, Galea & Hulse, 2010; Peacock et al, 2013). Although the majority of papers look at the process of decontamination specifically, they show an interesting side of casualty behaviour and give an evidence base of how to best manage casualties in order for them to comply with something they may not have done before, that is not pleasant as they may have to undress and get wet, but is essential to stop the spread of anything unwanted.

One study looks at managing casualties from the side of the US Fire Departments and found that there were no fixed rules for managing casualties, including how they are spoken to, what instructions are given and how they are walked through (Power et al, 2016). This inconsistency is evident in the guidance that has been reviewed in several studies as again there is no clear instruction on how to manage casualties during decontamination (Carter et al, 2016; Carter et al, 2013). Even though experiments

carried out on groups of volunteers undergoing live exercises or trials of decontamination have indicated that being given sufficient instructions prior to entering decontamination as well as information on why it is necessary can result in people that are orderly, cooperative and compliant with instructions (Carter et al, 2014a; Carter et al, 2015; Carter et al, 2013a; Carter et al, 2013c). This research has also shown that understanding casualties' behaviour and preferences in relation to decontamination can mean that casualties are managed successfully and the importance of things like communication are understood (Carter et al, 2014b; Carter et al, 2018a; Carter et al, 2018b). Understanding how to manage casualties can prevent people seeking further treatment, prevent non-compliance, poor relationships or perceptions of responding professionals and can stop people feeling confused and therefore should be investigated more in other situations that involve the emergency services.

Research that looks at casualties evacuating also has some crucial findings, for example when in a situation where evacuation is required people can be resilient and altruistic among others and not selfish under pressure that may be believed (Cocking et al, 2009). Furthermore, 3 out of the 4 relate to the evacuation of the world trade centres on 9/11, therefore it is an unusual fire and situation to be in but it did highlight how people will still seek help and will not automatically evacuate even though the signs of danger are present such as smoke, loud noises and debris and instead some people stopped to undertake unnecessary actions (Day et al, 2013; McConnell et al, 2010; Peacock et al, 2013). Research such as this therefore highlights how people responsible for building safety should refrain people from undertaking unnecessary actions such as collecting belongings or turning off computers, in such emergency circumstances. This is something that can save lives as further harm could come from not evacuating immediately and so should be researched further and shared with members of the public and professionals.

Myths and models of crowd behaviour

The third theme that is the myths and models of casualty behaviour covers 14 out of 33 papers that discuss common misconceptions (myths) and reality's (models) of casualties in a major incident. The myths make up 4 out of the 14 papers for this theme (Carter et al, 2014b; Cocking & Drury, 2014; Donald et al, 1992; Jeon, et al, 2009)

and the models that explain behaviour as well as the reality of casualty behaviour including resilience, cooperation and altruism and makes up the other 10 out of the 14 papers.

Some papers specifically looked at the expectations and assumptions of people, including responders and found that those responders with no real life experience of decontamination expected people to panic but those who did have expertise made no reference to panic or any type of non-compliance (Carter et al, 2014b). Another paper that looked specifically at talking about panic found that although the word was used when giving accounts of Hillsborough in 1989, it was only used to convey feelings and not to describe events or occurrences (Cocking & Drury, 2014). This therefore shows that it is a word often used but when they are inexperienced or due to it being part of their language but there is often no evidence of it. This is also evident in the research relating to the Kings Cross Fire (1987) and the Deagu Subway Fire (Donald et al, 1992; Jeon, et al, 2009) where people did not panic so much so that they reportedly stuck to their usual orderly schema in a train station and were not aware of how dangerous the situation was because nobody else acted how they expected them to in an emergency situation. For example, there was no running or screaming and instead people acted passively and orderly meaning that by the time people got around to evacuating in both cases the fire was too advanced and the smoke was too much causing fatalities in both cases.

Instead of the common assumption that people are selfish and helpless, the opposite is often reported in the literature. A series of papers have found that instead an emergency can bring people together by creating a common identity among those effected which, as a consequence, means people are more altruistic and cooperative towards each other (Cocking, Drury, Reicher, 2009a; Cocking, 2013; Drury, Brown, Gonzalez & Miranda, 2015; Drury, Cocking & Reicher, 2009a; Drury, Cocking, Reicher, 2009b; Drury, Novelli & Stott, 2015; Drury & Reicher, 1999; Drury & Reicher, 2000). This helping behaviour has been found to be spontaneous and can be encouraged by seeing others help (Cocking, 2013). Providing support to others is in a way contagious as people are influenced by other people in the emergency (Drury et al, 2015). This collective and more positive area of research was also supported by other research that suggests that casualty behaviour was universal across many disasters and was often adaptive, non-selfish and many people reported helping one another (Grimm, Hulse,

Preiss & Schmidt, 2014). Although one experimental study did show that being part of an in-group did increase people's likelihood to help, this was in relation to football teams (Levine, Prosser, Evans & Reicher, 2005). Nevertheless, if being part of the same research brings people to form a common identity then they may all feel part of the same group, therefore increasing a likelihood to help one another.

Overall this approach of casualty behaviour makes reference to Self-Categorization Theory (SCT) which is a social psychological theory that describes how people who had a high identification with others were more likely to report a shared fate than those low in identification (Drury et al, 2009a), it can also be described as a shift from 'me' to 'us' and therefore showing concern for others (Drury et al, 2009b). All this research suggests that casualties can be of help and as one article says people involved in an emergency should be part of the solution not the problem, as they can become first responders and helping each other, (Cocking, 2013).

This area of research also points towards a modern model of behaviour in crowds known as the Elaborated Model of Social Identity (Drury & Reicher, 1999; Drury & Reicher, 2000). The main proposition of this model is that a component part of the self-concept determining human behaviour in a social setting is derived from psychological membership of the particular social category. This theory explains collective action as being possible when a social identity is simultaneously salient and shared among crowd participants. This theory has already received some support and has been explored in a related context; it has been found that the idea of emergent shared social identity as a result of a perception of common fate can be applied to situations of a crowd facing mass decontamination (Carter Drury, Amlot, Rubin & Williams, 2013; Carter, Drury, Amlot, Rubin & Williams, 2014; Carter, Drury, Rubin, Williams & Amlot, 2015). Nevertheless, as it is relatively new more research should look into how this theory can be applied to other aspects of major incidents.

Impairments with casualty behaviour

The last theme of this first section is the impairments that exist with casualty behaviour. Of the 33 papers included in this first section 3 of these papers look at the biochemistry of casualties and conclude that this may be why some research has found that casualties can behave inappropriately for the situation, for example not evacuating straight away or not exiting via the nearest exit when an underground fire occurs.

Findings from Leach (2004), have found that ‘freezing’ is a frequently cited behaviour and can be dangerous, it has also been referred to as shock, horror and a paralysis in emergencies. This research concludes that it is neurocognitive function that is taking time to process the several steps between perception and appropriate action, however it is not a reaction that everybody will have in a survival situation. Further research has also found that when exposed to survival situations other parts of the brain can become impaired and can lead to temporary restrictions due to the environmental duress that means the person’s behaviour becomes dominated by environmental cues instead of goal directed survival behaviour (Leach & Ansell, 2008; Porter & Leach, 2010). It is concluded in these papers that this answers why some people perish in survival situations, when other survive (Leach et al, 2008).

Section 2: ‘How do people currently prepare for major incidents?’

For the second part of the narrative review, the remaining 12 papers look at how people prepare for major incidents. There are 3 themes emerging from this that are, in order of prevalence, influences for level of preparedness (6 out of 12 papers), types of preparedness information requested (5 out of 12 papers) and lastly social support and communities (4 out of 12 papers).

The types of disaster discussed in this section varied, there were 3 studies on earthquake preparedness, 3 studies on terrorism, 2 studies on hurricane preparedness, 2 studies on overall emergency preparedness, 1 study on floods and 1 on managing the effects of a cyclone. The methodology for this second part of the narrative review included an even split of studies carrying out interviews (k=6) and studies carrying out surveys (k=6) collected with either people have been through disasters (k=4) or members of the public (k=8).

Influences for level of preparedness

Influences for level of preparedness is a theme that incorporates all the many different factors that may make some people more likely than others to prepare. The main influencers seem to be demographics and prior experience. For Demographics several differences were present including gender, place (Keenan & Hanson, 2013). For example, it has been found that women discuss preparing in the house more, whereas men discuss preparing external to the home, women also discuss terrorism more

(Keenan et al, 2013). Older people have also been found to be less prepared and those with less social support and income (Kim & Zakour, 2017).

Experience of a prior emergency was often discussed but there were a few discrepancies of the findings in relation to how important it impacts on preparedness. For example, one study found that experience of floods came second to family persuasion in relation to evacuation (Adeola, 2009) but this study also found that that people would only act if they deemed the threat to be credible. Another study found that there are four different factors related to experience that all impact level of preparedness, these four factors are indirect disaster experience, vicarious disaster experience, vicarious experience and life experience (Becker, Paton, Johnston, Ronan & McClure, 2017). These types of experiences can encourage and prompt people to talk more and develop more awareness about preparing for disasters. In another study the terrorism incident that took place on 7th July 2005 in London, increased preparedness in the following months and took physical precautions to prepare, this was linked with feeling threatened on the day of the bombings (Page, Rubin, Amlot, Simpson & Wessley, 2008). Another study has found that anticipation related to height/strength of residence and control and trust in official are much more strongly related to people's likelihood to prepare than what a prior experience of an incident was (Rustemli & Karonci, 1999).

Types of preparedness information

The types of preparedness information requested is a theme that deals with what studies have been found to be the most far reaching and beneficial information to be shared in order to increase preparedness. Some studies have stipulated that this needs to be varied information as different people will prefer to do certain things, that then can become shared within the community (Adams, Karlin, Eisenman, Blakely & Glik, 2017), especially as people will rely on different modes of media to receive valuable notifications (Tennyson & Diala, 2016). Other studies have highlighted that people want clear instructions of what to do, where to go and when so they can follow instructions in adequate time (Adeola, 2009).

It was also found that people who are prepared seek out information for themselves to become aware (Donahue, Eckel & Wilson, 2014), this insinuates that the government information is not far reaching but only gets to people who do look for it. This study

also suggests that preparedness programmes are designed in a way that allow people to prepare 'just in time' and not 'just in case' meaning the information gives instructions people can act on before an imminent disaster occurs, instead of giving information people may not ever use. Trust in messages has also been found to be the most important determinant in the decision to take preparedness action in one study (Paul, 2012).

Social Support and Communities

Lastly social support and communities is a theme that discusses how becoming prepared can be essential for communities but can also bring communities together. One study reports strong associations between self-efficacy not only influencing household preparedness but community resilience too (Adams et al, 2017). This can be further explained by other research that has found that people who know someone who has taken one or more preparedness action are more likely to take action themselves, therefore social influence can be more salient than cognitive appraisal and so close-knit communities can encourage each other to become more prepared (Wirtz & Rophrbeck, 2017).

Stronger levels of preparedness have been found in sub-groups where there are strong social bonds and networks (Kim et al, 2017), this is crucial for older people who can be less prepared and less connected to the community, therefore increasing community memberships can ensure useful preparing information is shared and dispersed with people looking after one another in times of need. Other research has found that shared community identities can emerge from disasters as the community has shared goals, shared problems, perceptions of vulnerability and a collapse of previous group boundaries (Ntontis, Drury, Amlot, Rubin & Williams, 2018). This can encourage social support and can mitigate the impact of secondary stressors that benefit people in long term recovery as this emotional support generated through a shared community identity, based on a common fate, can empower the community during meetings and can create a stronger community where people feel their voices are heard (Ntontis et al, 2018).

Overall methodology

As previously mentioned, the majority of papers included in this narrative review included survivors from previous disasters and often involved interviewing them a number of years after the disaster had occurred. There is an ethical necessity to wait an appropriate amount of time for casualties to be asked to participate in research, however information may be lost due to memories fading over time (Crandall, Klein, Hoffman, 2006), this may have been an issue with some of the papers in this review. There is also a chance of social desirability as people want to say that they thought about others and helped casualties in order to come across in a manner that is viewed favourably by others (Aronson, Wilson & Akert, 2004). Therefore, the reliability of the accounts of survivors may not be completely accurate.

Nevertheless, these types of studies can be seen as having more ecological validity than other studies included in the narrative review that include members of the public playing or visualizing the role of casualties in a simulated incident or than experimental studies. Although live exercises or field studies can be designed to replicate emergency environments and can be both physically and psychologically safe but also provide an immersive environment to study behaviour in (Alison et al., 2013). Experiments also have their own benefits as they can also afford more control to study certain aspects of a person's behaviour in detail (Brehmer & Dörner, 1993). Additionally, attaining participants for field or experimental studies is much easier as members of the public can often take part (Horsley, 2012).

There was also a large group of studies in this narrative review that focused solely on mass decontamination but generated a number of different findings through carrying out different types of study, for example field studies and experimental studies. Furthermore, this specific group of research has not only collated the literature in the field through literature reviews it has also included both members of the public and the professionals responsible for carrying out mass decontamination (Fire Departments). This type of research coverage and the many different methods used could be used as a basis for expanding and testing the findings in these studies with other situations that involves an interaction between the emergency responders and casualties.

1.6 Research aims

The previous chapter has sought to collate studies that look at how casualties behave and how they are managed by emergency services as well as looking at how people can prepare by undertaking a narrative literature review. It is evident that there are many research groups looking at these areas for example there is a broad collection of studies that look at crowd dynamics and the psychosocial aspects of casualties undergoing mass decontamination, there are researchers looking at altruism and positive behaviour resulting from a common identity and shared fate and there is an area of research that focuses on the biochemistry and cognitive impairments that can occur in a survival situation. Nevertheless, the narrative review has shown that this work can be expanded upon to gain a further understanding in these areas. Furthermore, more work on bridging the gaps between the emergency services and members of the public should be carried out so findings can be practically implemented into training. This is important for ensuring there is a high level of trust and confidence in the emergency services as well as gaining cooperation and compliance from members of the public.

However, this specific field is difficult to research as it requires access to casualties who have been involved in unpredictable, and often devastating, major incidents. Therefore, alternatives to research this area of research is important. This research therefore aims to take previous research into consideration and carry out further research into casualty behaviour, in different scenarios, to see what impairments exist, what encourages people to behave altruistically and aims to see what casualties say the emergency services can do to improve their perceptions of them. Furthermore, more research into what motivates people to become prepared may also help the emergency services in the long run. Similar to previous studies discussed in the narrative review, this research aims to work alongside the emergency service and members of the public to provide education on both sides and to build positive relationships between them. The novel aspect is that this research will solely focus on simulated casualties in simulated large-scale major incidents, known as live exercises. This will provide an alternative to the difficulties of collecting research in this area whilst still providing findings that are useful for the emergency services.

This research therefore purports to specifically add onto the findings of the narrative review through the following aims:

1. Collect data on how casualties may behave in major incidents. This will be done by carrying out surveys and interviews with people who have played the roles of casualties in three live exercises. All three exercises will include a large number of responders and casualty volunteers and will be full scale incidents, that means that all three exercises will be extensive exercises that take place at a location that includes the equipment and emergency service personnel that would be called upon in a real event and they often include participation from local businesses (Ready.gov, 2019). Two out of the three exercises will also be large-scale exercise; according to the United Nations Office for Disaster Risk Reduction (UNISDR, unisdr.org, 2019) large-scale means a type of disaster affecting a society that requires national or international assistance. One of these large-scale exercises is also funded by the Home Office as it testing a government programme JESIP (2014). Collecting data from live exercises is an ethical method to collect information from people that will explore common behaviours among people playing the role of casualties. These volunteers will be referred to as casualties throughout this thesis as that is what they are simulating. Collecting this information may help in preventing casualties causing further harm in the future if it can assist the emergency services in identifying common behaviours and perhaps warning signs in people's behaviour. The access to such unique and realistic exercises is extremely rare and adds a novelty to this research.
2. Collect information on the perceptions and evaluations of the current emergency response from people receiving medical treatment or being physically rescued by the emergency services during live exercises. This type of information could be used to devise practical advice for the emergency services on how to manage casualties in the future. This could assist in increasing compliance with procedures as well as the trust and confidence people have in the emergency services.
3. Explore how members of the public can be encouraged to become more prepared in case they were to be caught up in a major incident in the future.

This is important as anybody can be caught up in an incident. Furthermore, a more prepared person can assist the emergency services physically as they may be able to understand what is going on and could possibly help other people.

Overall this research aims to explore the psychological underpinnings behind casualty cognition, so it can then be used to directly benefit the emergency services. This can assist the emergency services in encouraging adaptive survival and coping behaviours if the worse was to happen by providing them with a better understanding of how people may behave and how people want to be treated in these situations. Although predominantly exploratory in nature, this research will also draw on previous social theories and research such as the bystander effect and self-categorization theory. This research will also add to the current and existing research on casualties in major incidents.

The remainder of this thesis will be as follows:

Chapter 2 explains the method of data collection for three out of four data chapters and will outline the three full scales exercises that this research had access to. This chapter will cover what a live exercise is, the benefits and uniqueness of live exercises, it will outline why interviews and surveys were collected for the data in this research and it discusses how access was attained by the research group to collect data in 2 live exercises. An overview of each of the exercises will then be given, with the specific researcher involvement detailed at the end of each exercise description.

Chapters 3, 4 and 5 are all data chapters. They all involve thematic analyses carried out on the interview and survey data with role playing casualties across the three full scale live exercises. However, each chapter looks at a different aspect. Chapter 3 explores how people behave in simulated major incidents by analysing casualty interview accounts and the surveys completed post exercise. Findings discuss casualty experiences and the expectations they had that are altered following their participation. Chapter 4 looks specifically at how casualties behave with other casualties in simulated major incidents and will discuss the idea of casualty cooperation and community resilience whilst Chapter 5 explores how people rate the response they receive from the emergency services in exercises, in addition to highlighting people's preferences for a major incident response.

Chapter 6 is the last data chapter that takes a different approach by using data from focus groups and surveys with members of the public. The data in this chapter is analysed using a content analysis. The primary aim of this chapter is to assess their beliefs when it comes to preparing for major incidents and to explore what their perception is of risk information, what prevents people from becoming prepared and looks at how you can encourage people to become more prepared for major incidents.

Chapter 7 provides a conclusion to the thesis and will discuss the contributions of the work undertaken, both theoretically and practically for the emergency services. Methodological limitations and the reflexivity of the researcher will be discussed in addition to what can be done in the future to add to this work.

Chapter 2. Methodology: Practical and methodological benefits of collecting exploratory data from live exercises

2.1. Introduction: Using ‘real casualties’ in research

This research aims to explore the behaviour of casualties in major incidents, to gain an understanding of their perception and preferences for treatment and rescue from the emergency services. However, researching real casualties raises some ethical concerns as the mental, physical and psychological consequences of major incidents are well documented (Jesus & Michael, 2009), and so to ask for an accurate recount of the incident may not always be deemed in the best interest of the people involved. There are other difficulties in using this group too, such as attaining access to a group of casualties (Horsley, 2012). Major incidents are unpredictable and, so it is impossible to identify a group unless an unfortunate event occurs.

Furthermore, when an unfortunate event does occur the people involved are considered vulnerable (Horsley, 2012) as they would have endured a potentially traumatic unexpected event and may be injured, have seen people injured or could have lost people close to them. Therefore, the treatment of casualties raises many unique, ethical challenges for balancing the benefits against the controversy of exploiting human beings who have been through a disaster and have other priorities (Jesus et al., 2009). However, some research has found that discussing the events post-disaster can be critical for the early process of survivors (Doohan & Saveman, 2015). Sharing experiences with others can avoid people feeling isolated and can instead allow people to understand what happened and attribute some meaning (Drury, Cocking, Reicher, 2009b; Eyre, 2006). Nevertheless, it is important to wait an appropriate amount of time for casualties to recover, without information becoming lost due to memories fading over time (Crandall, Klein & Hoffman, 2006).

There are other ways to carry out research in this field that do not include real casualties, but instead include the emergency services, for which training is mandatory. Although there are many types of training exercise (see table 2 below), live exercises are one option as they can offer a real life, immersive environment of which to collect data from (Alison et al., 2013, Dyer & Williams, 1991, Legemate, Burkle & Bierens, 2012) they have been chosen to collect data from for this research. The author had the privilege of gaining access to three unique exercises of varying level (local, national

and international) and sought to use this novel approach in order to answer two out of the three aims outlined in the previous chapter. This chapter therefore aims to introduce live exercises, including the benefits and limitations to this method, an overview of the three live exercises used in this research and the approach taken to analyse this data.

Table 2: The of types of exercise used by emergency services (Gov.uk, 2019)

Type of Exercise/training	Definition
Seminar	Seminar exercises are generally low-cost activities and inform participants about the organisation and procedures which would be invoked to respond to an incident. The emphasis is on problem identification and solution finding rather than decision making. This type of event can introduce new staff to the role or can bring staff together to inform them of current developments and thinking.
Table top exercises	These are typically discussion-based sessions led by a facilitator in a classroom setting where team members discuss their roles and responses to a scenario. Table top exercises are a very cost effective and efficient method of testing plans, procedures and people but they are difficult to run with large numbers, These types of exercises can also increase familiarity of role and of team members, allowing a more effective response than those who come together for the first time when a disaster occurs.
Control post exercises	In control post exercises, the team leaders (and communications teams) from each participating organisation are positioned at the control posts they would use during an actual incident or live exercise. This tests communication arrangements and information flows between remotely positioned team leaders from participating organisations without involving front line staff. These exercises are cost effective and efficient in testing plans, procedures and key people and are essential for achieving a smooth-running real emergency.

Live Exercise	The scale of a live exercises range can vary from one agency testing its procedures through to a full-scale test of the whole response to an incident, involving multiple agencies. Live exercises provide a means of confirming the satisfactory operation of emergency communications, and the use of 'casualties' can add to the realism. Live exercises provide the only means of testing fully the crucial arrangements for handling the media. Live exercises can vary in budget and sample size.
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2.2 The benefits and limitations to live exercises

A live exercise is a specific type of simulation environment that replicates dynamic and complex incidents and serves as a close approximation to a real-life event (Dyer & Wilkins, 1991; Caird, 1996; Alison et al., 2013). Such environments can maximize the strengths of in vitro laboratory and in vivo field research as well as focusing on the social and cognitive processes needed for effective management within and across the emergency services (Alison et al., 2013). Live Exercises are used by a number of high powered organizations to test and evaluate their procedures for example the Navy (Schank Thie, Graf, Beel, & Sollinger, 2002), Cyber Security (Doup et al., 2011), the government (Carmeli & Schaubroeck, 2008), Public Health (& Schaubroeck, 2008; Eastwood et al., 2010) and more commonly the emergency services (Alison & Crego, 2008; Alison et al., 2013; Cohen-Hatton, Butler, & Honey, 2015; Jenvald & Morin, 2004). They provide a rich and novel environment for research allowing observers the chance to evaluate and describe complex human behaviour (Benbasat, Goldstein & Mead, 1987; Brehmer & Dörner, 1993; Huberman & Miles, 2002). The type of data collected in a live simulation can be useful when investigating a specific phenomenon in detail (Benbasat et al., 1987) as well as in exploratory studies (Dyer et al., 1991).

Live exercises depicting disasters are commonplace throughout the world and serve as a major educational and training tool (Legemaate et al., 2012). Live exercises present an important opportunity to prepare, test, and improve research to evaluate the medical management of victims in a real event (Legemaate et al., 2012). The objective of a simulation exercise is to 'rehearse' a disaster situation in order to better prepare but it is not clear though if these simulations really do help societies and organizations to prepare (Revet, 2013). Exercises, drills or simulations are widely used by government

agencies and commercial organisations to simulate serious incidents and to train staff on how to respond to them (Lee, Trim, Upton & Upton, 2009). Many organizations hold exercises in order to test how they would respond to a particular set of circumstances and to train their staff (Lee et al., 2009) as they can be an integral part of emergency preparedness and can enable them to not only review and understand their own and each other procedures but they can highlight potential issues with command and control before a disaster strikes (Kim, 2014). Live exercises can therefore be considered an effective training tool that also covers the three main purposes of these exercises: test, train and validate (Cabinet Office, 2011.);

Focusing on observable behaviours “in action” has been termed as a beneficial skill for analysing people’s performance (Rosen, Salas, Silvestri, Wu, & Lazzara, 2008). The benefits of researching the emergency responders at work is key to understanding how they could improve their response and treatment of casualties, that in the future could limit the lasting psychological impact they face. It is also a unique opportunity and so if feasible it should be taken advantage of (Crandall et al., 2006) as there are insights and types of information that cannot be attained other than by monitoring the way people work physically. Therefore, there is a necessity to design ways in which the response can be understood, as it can be difficult to evaluate the quality of the performance during a disaster as research instruments may be not available, not validated, or may be impossible to administer without impeding on the response (Legemaate et al., 2012). Live exercises therefore offer new opportunities to test procedures and to prepare people to respond better to a real emergency (Gomes, Borges, Huber & Carvalho, 2014).

Research has found that exercises aim to help authorities to become better at handling accidents, crises and disasters (Carmeli & Schaubroeck, 2008). Live exercises provide opportunities for organizations to learn through practice which means there is more cognitive input and more learning taking place which in turn enables people to practice coping with hazards and potential derailments such as uncertainty or decision inertia, a failure to make a decision, (van den Heuvel, Alison & Crego, 2012; Carmeli et al, 2008). Organizations that advocate a culture of learning from failures and makes changes as a result of failures identified usually have a higher level of preparedness for potential occurring crisis’s than those who do not run exercises (Carmeli et al, 2008).

However, it is important for organizations, such as the emergency services, to respond proactively to early warnings which may appear in exercises and to respond proactively, even though they may present a weakness in the organization itself (Carmeli, et al, 2008). A culture of learning from failures is crucial as only then can the training methods improve the major incident response (Carmeli et al, 2008; Cohen et al, 2012). The evaluation stage is the most important part of the exercise and should be carried out with all role players, including casualties, as everybody involved can assist with making recommendations and feeding back to the emergency services in order to make improvements. This evaluation stage can prevent the outcomes becoming lost which in turn prevents gives the exercise a purpose of improving the parties involved for an improved future response (Cohen et al., 2012). It is therefore important for researchers to be involved from the planning stage in order to ensure learning requirements are set and can be tested effectively although this can be challenging due to gaining access and scheduling time in with busy professionals (Cohen et al., 2012; Fowkes et al., 2010).

Furthermore, even though a great deal of effort and expense goes into these exercises they are still inherently artificial and planned to some degree and so without validation, it is uncertain if people will behave and react in the same way that they would in a natural setting (Crandall et al, 2006). Although the physical actions and exhaustion may be present in live exercises as the emergency services are carrying equipment and possibly people, it is unclear if simulations fully capture the stress of putting lives in jeopardy in addition to the mental exhaustion that the emergency services will ensure in a real emergency (Crandall et al., 2006). Improving fidelity and rigor is therefore important in live exercises.

2.3 Fidelity and rigor in live exercises

Although the high level of control afforded in laboratory studies prevents interference and allows for solid conclusions to be drawn, laboratory decision-making tasks are often criticised for being devoid of ecological validity and real-world influences (Brehmer et al., 1993). Therefore, field research is often recommended to examine how experienced decision makers interact in “real life” within complex applied contexts to provide valid recommendations (Alison al, 2013). However, field

researchers struggle with having limited control, which creates problems for making causal inferences between variables (Brehmer et al., 1993).

Simulations however can offer high fidelity in a controlled environment that can reproduce critical situations and present opportunities for people to work on human factors and to explore how people can better response to decisions and challenges (Gomes et al., 2014). The physical fidelity, the degree to which physical surroundings resemble the real-life environment, can be achieved in exercises but simulations involving the emergency services are more concerned with the mental re-enactment of the process by that participants interact with other agents involved in the scenario, this is the psychological fidelity (Alison et al., 2013); this is what highlights any potential failures (Carmeli et al, 2008)

It has been found that three crucially important factors can enhance psychological fidelity in real incident replications: complexity, dynamicity, and opaqueness (Brehmer et al., 1993) and are important to include when designing high-fidelity simulations. Complexity can be built into simulations by providing participants with a realistic set of features or conflicting goals that they must make a conscious effort to consider making decisions; Dynamicity can be built into simulation exercises via “feeds” or “injects” that offer participants judgmental choices in which the consequence of the better or worse decision arises later on in the exercise thereby allowing the decision maker to experience some accountability ; and lastly, opaqueness can be achieved by ensuring that elements of information remain inaccessible to participants(Alison et al., 2013; Brehmer et al., 1993).

All three of these elements were achieved throughout the exercises included in this research, meaning the emergency responders had to rely on their previous experiences to make inferences as they would in a real-life situation (Brehmer et al., 1993). This also meant that the exercises included in this research allowed a realistic replication of a real life high-risk, high-stake, uncertain environment affording role players the opportunity to become immersed in the scenario (Eyre, 2008). Accordingly, this enables researchers to examine real reflections, cognitions and emotions of role-players included in the exercises (Alison et al., 2013).

There is also a potential limitation to consider with simulated training, that is the need for scientific rigor (Alison et al., 2013). Rigor is usually defined in research in terms

of reliability and validity, therefore implicitly defining it means that it is only compatible with the quantitative-experimental paradigm (Lipshitz, 2010). Furthermore, Lipshitz (2010) explains that concerns surrounding rigour with this type of research are usually redundant as there is a difficulty in attaining both rigor and relevance. Access to qualified decision makers directly related to the field involved ensures that the study is relevant, and the results have meaning.

2.4 Data collection in live exercises

2.4.1 Measures

Although one of the benefits to live exercises are recording and making real observations of human behaviour and interactions, observations are more reliable if they are combined with other forms of data collection, interviews for example, to see how participants are viewing and evaluating the events (Crandall et al., 2006). Furthermore, recording events and actions are not always ideal as they can result in misleading or cognitively narrowing the account (Crandall et al., 2006). Therefore, both surveys and interviews were carried out in all three of the exercises used in this research.

Overall, the measurement tools answered the three main research aims, covered in chapter 1 to: collect data on how casualties may behave in simulated major incidents, collect information on the perceptions and evaluations of the current emergency response from people receiving medical treatment or being physically rescued by the emergency services during live exercises and to explore how members of the public can be encouraged to become more prepared in case they were to be caught up in a major incident in the future. The questions (as detailed below) for both surveys and interviews were the same in each exercise and were purposefully left broad and covering the same topics of behaviour, observations and perception even when exercises progressed and became larger as the original research plan was to compare exercises of different scenarios to look for any similarities.

Furthermore, the questions were shared with a research team, that consisted of different master's students per exercise, who were going to share the data to use in their dissertation in exchange for helping collect the data. Training was provided to students on the research team by members of staff on the research team who provided the students with multiple sessions familiarizing them with the research aims of the

whole team, measurement tools, informing them of how previous exercises have run and showing them how to administer surveys or how to carry out interviews. This ensured that everybody on the team had a clear idea of the research objective. Students also had training as part of their postgraduate course due to one of their modules being on research methods, with a 3 hour session on interviewing .Lastly, students were given the chance to practice their interview skills with each other, to complete a survey for themselves to understand the questions and could also ask any questions if they felt unsure about anything. This ensured that quality data was collected, regardless of who it was carrying out the interview or administering the survey. Questions included also had to also be accepted by the emergency services who also an interest in had knowing what participants thought of them and so that had to be a constant in each exercise. The data also had to be used to create a report and a presentation and so again had to contain questions that were of interest and were of practical use to the emergency services.

Surveys:

Two surveys were included in each of the three exercises. There was a pre-exercise survey usually sent out via email 4 weeks prior to the exercise for people to complete. Any one signing up before the day of the exercise was invited to complete this survey. There was also a post exercise survey given straight after the exercise for people to complete.

For the pre-exercise survey it started off by asking a mandatory question for ethical purposes, this was what was the name of your first teacher? This was so it could be matched along with the date of birth and could be extracted if the person wanted to withdraw their data from the dataset at any time. The first section of questions then started with a demographic section that asked the following questions: date of birth, gender, ethnicity, religious preference, what is your employment status? If employed, what is your occupation?, what area do you currently live in? were you born in this country? If not, where were you born? Is English your first language? If not, what is?. The purpose in some of these questions was not necessarily to contribute to the research aims but was to provide an overview in the research and the practitioner reports of who is volunteering to take part in live exercises and who was included in the research.

The next section focused on emergency service perception questions, this was one aim of this research and was also the main aim of the emergency services to see what people thought of them and to also assess whether this changed over time. For that reason this was one of the main focuses of the surveys, and for it to be measured over time, the same questions were asked in the pre-exercise survey and the post-exercise survey for direct comparisons. Furthermore, in order to ensure the tool to assess this aspect was valid the questions were based on NHS Perception Surveys. The reason for this was that the NHS is still dealing with casualties in a medical and sometimes emergency capacity and was the closest tool available to make comparisons with. Additionally, both sought to inquire into how people find they are treated and attempt to unveil the perception, changes in perception and preferences of the casualties. Although the NHS surveys have been running since 2000 with the same questions, they also incorporate issues relevant to today's society therefore keeping them relevant (Ipsos MORI Social Research Institute, 2014).

The first draft of the survey included many adapted questions from the section known as 'key perceptions of the NHS', some examples of the NHS questions that people are asked to rate are: 'the NHS puts quality at the heart of all it does', 'people are treated with dignity and respect when they use social care services', 'the NHS is doing everything it can to prevent inefficiency' and a likert scale is given for people to score strongly agree to strongly disagree. This was adapted for each service such as the police service 'the police service puts quality at the heart of all it does', 'people are treated with dignity and respect when they come into contact with the police service', 'the police service is doing everything it can to prevent inefficiency'. However when making amendments it was decided that the questions should be further adapted to suit the emergency services and what they wanted the research team to provide as well as what this research could contribute. For example, to be part of the exercises the emergency services wanted to know how much trust and confidence people had in them therefore it was decided that some of the statements asked should be 'I trust the police service' and 'I have confidence in the police service', for each of the services individually, for each exercise both before and after the exercise to make comparisons. The format of the NHS perception surveys, for example the use of sub-category's, statements and likert scales was used as a basis to design these surveys. The measure over time was also similar too, although there was only 4 weeks in between these

surveys and not a year to measure any difference in perception using the same questions.

For the section on emergency service perception for both the pre-exercise and post exercise questions the following questions were asked:1) Below you will find a series of statements, please score your level of agreement from 1-5, 1 (*strongly disagree*) to 5 (*strongly agree*)

- a) I trust the Police
- b) I have confidence in the Police
- c) If I needed help, I would feel reassured to see the Police
- d) I would not feel secure if I was being managed by the Police
- e) I think the Police Service generally offer a good service
- f) I trust the Fire and Rescue Service
- g) I have confidence in the Fire and Rescue Service
- h) If I was trapped and needed rescuing, I'd feel secure knowing that the Fire Service would deal with the situation well
- i) I wouldn't feel very reassured by the Fire Service turning up if I was really in trouble
- j) I think the Fire Service generally do a good job
- k) I trust the Ambulance Service
- l) I have confidence in the Ambulance Service
- m) I would feel safe in the hands of the ambulance service
- n) I feel the Ambulance Service generally do a good job
- o) I trust that the Ambulance Service would treat me correctly if I needed medical assistance
- p) I trust local authorities
- q) I have confidence in local authorities
- r) I would feel reassured being in the hands of local authorities
- s) If I was at a survivor centre, I know the local authorities would help me
- t) I think the local authorities overall do a good job
- u) I would comply with instructions given to me by the emergency services or authorities
- v) I feel that the emergency services or authorities understand my concerns

- w) I am happy with the amount of information the emergency services and authorities share with the public
- x) I believe the emergency services and local authorities provide a great service overall
- y) I think the emergency services and local authorities need to do more training to improve their service
- z) I know the emergency services and local authorities are capable of looking after me if I need their help

There was then an open ended question section that allowed for people to give reasons for their answers and to give more information. This asked the following questions: please give a reason for your answers to a-e (Scores for the Police), please give a reason for your answers to f -j (Scores for the Fire and Rescue Service), please give a reason for your answers to k -o (Scores for the Ambulance service), please give a reason for your answers to p - q (Scores for the Local Authorities), have you come into contact with the emergency services or local authorities before? If so, please explain why this was and how you rated the service you received., have you taken part in a training event run by the emergency services or local authorities before? If so, how well did you think the event went?

The post-exercise survey included identical questions to the pre-exercise survey but had additional sections to cover their experiences and evaluations of the exercise they had taken part in. These questions were asked based on the research aims of understanding people's perception of the emergency services, what preferences people have for how they are treated and rescued by the emergency services and questions were also checked and amended by members of the emergency services based on the information they wanted to find out from people taking part.

The section that covered their experiences of the exercise included the following questions: What was your role on the day? , What tasks were you responsible for completing?, Did you find any parts of this day challenging? If so why? , Can you think of anything that may have helped you in overcoming these challenges? , Did you learn anything from taking part in this training day? If so, what did you learn? What aspect of the event will you remember the most? Why? Did any of the emergency responders (Police, Fire or Ambulance) or any other agencies (e.g. local authorities)

communicate with you personally on the day? If so who? And how often? Which agency did you come into contact with the most? Did you feel happy with the amount of information given to you during this event? Why? What changes would you like to see being made for future incidents?

A last section was also included that asked more about people’s preferences in relation to communication, this was only collected in Exercise KMAF Warrior and Exercise Joint Endeavour but was not collected in Exercise Unified Response as other questions were added on the survey for other students to gain a use from and so it was decided that these questions should be removed so that the survey was not too long and off-putting. Due to it only being included in 2 out of 3 exercises, it was not included in the analysis or write up of this thesis. The 3 questions asked in this section were: Are there any other words you would use to describe how emergency services were communicating with you during the exercise?, Are there any other words you would use to describe the way in which you would want to be communicated with? and Please complete the table by indicating how you felt the emergency services communicated with you and how you would like them to communicate with you in future. Please write your level of agreement to each descriptor (*1=strongly disagree, 5= strongly agree*)

Communication descriptor:	How they communicated during the exercise	How I would want them to communicate
Authoritatively		
Aggressively		
Reassuringly		
Confidently		
Supportively		
Precisely		
Eloquently		
Practically		

Persuasively		
Empathetically		
Assertively		
Enthusiastically		
Caringly		
Honestly		
Frequently		
Sparsely		
Insufficiently		
Sufficiently		

As shown above, the surveys offered a mixture of both open-ended and closed questions. Closed questions that were included were in the form of Likert scale questions in order to compare people's responses fairly as they would all be using the same scale. Some examples of statements that people were asked to rate are: I think the Police Service generally offer a good service, I trust the Fire and Rescue Service, I have confidence in the Fire and Rescue Service, I believe the emergency services and local authorities provide a great service overall, I think the emergency services and local authorities need to do more training to improve their service, I know the emergency services and local authorities are capable of looking after me if I need their help. The people's feelings were further explored by then using open-ended questions that meant the individual was free to offer any response they wanted. This was also important as the research took an exploratory approach that sought to understand the views, feelings and opinions of the role players playing casualties. Examples of open-ended questions are: What was your role on the day? Did you find any parts of this day challenging? If so why? What aspect of the event will you remember the most? What changes would you like to see being made for future incidents?

Interviews:

Although surveys have the benefits of not requiring a skilled researcher, they do not allow people the freedom to talk about what they feel is important or do not allow the researcher to delve further into topics they find interesting at the time. Therefore, interviews were used alongside surveys as another method of data collection in all three exercises for this research. Interviews are widely used to elicit information as it captures information that is missed in other methods, it is efficient, and it avoids the logistical complications that comes with observations, for example if you do not conduct an observation at precisely the right moment you miss the key dynamics and critical learning of the incident (Crandall et al., 2006). Furthermore, a study looking into the risks and benefits of participating in qualitative interview research concluded that there are several benefits and few risks to taking part, especially when participants were members of a study defined as risky or vulnerable (Opsal, Wolgemuth, Cross et al., 2016).

Interviews were conducted using a semi-structured approach that allowed interviewers to probe for further detail on responses given and to engage in a flexible dialogue (Smith, 2008). Semi-structured interviews are well suited for exploration of perceptions of respondents regarding complex and sometimes sensitive issues and they enable interviewers to probe for more information and clarification of answers (Barnball & While, 1994). Additionally, having a semi-structured format also meant there was a certain degree of similarity amongst questions asked, therefore conveying an equivalence of meaning and allowing for comparisons to be made between interviews (Barnball et al., 1994).

For each interview it was requested that the only notes taken or recorded via voice in the recording were: 1) Interview number, 2) Location of interview, 3) Day of interview and the time, 4) Age & gender of the volunteer before starting the interview and lastly 5) Name of their first teacher. These were asked in order to make better sense of the interviews and to know what day, place these interviews took place but they were also asked in order to locate the interview should the participant want to have access to their interview (which they were offered). The last question was asked in order to keep data anonymous but to still be able to be locate an interview in case anybody wanted to withdraw their data from the dataset.

The format of the interviews was to open up by saying ‘Thank you for taking part in this research. The aim of the research is to explore the experience you have had today as playing the role of a casualty. I hope to ask some questions on what happened to you throughout the day, how you felt this went and lastly, I would like to ask if you have any suggestions for improving how the emergency services interact with casualties in the future.; and then to ask questions similar to the ones that are on the interview schedule. However interviewers were told to ask questions in a semi-structured format and to treat the interview schedule as a guide only. This allowed them to go along with any suitable lines of enquiry, including anything the participant felt strongly enough to talk about. When training the students who would be making up part of the research team for the exercise practiced using this the interview schedule by role playing. For example the researcher would ask them a question and the student would answer and based on the students answer the researcher would either ask another question to get further information if needed or would continue on down the list of questions on the schedule. This type of task served 2 purposes, it first validated the interview schedule as it gave an indication of the types of answers expected were the type of answers the researcher expected and it also got the other students helping used to asking relevant questions that were not necessarily on the interview schedule.

Overall, the interviews had three parts to them that were firstly recalling their experience. This included the following questions: I’m interested in finding out more about your experiences today. What role/character did you play during the exercise? What injuries did you have? What tasks did you have to perform?, Before you arrived, what did you imagine today would be like? Were your experiences as you imagined they would be? Why/Why not?, What was most memorable about your experience? Why?, Have you ever had any other experiences similar to this? If so, can you tell me about this?, What do you think police are responsible for doing in a large emergency such as this? What do you think the fire and rescue service are responsible for? What do you think the ambulance service is responsible for?, From what you saw, how well do you think these emergency services managed to achieve the tasks that they are responsible for? Why?, In your opinion, how well do you think the emergency services worked together? Why? Please can you give me an example of this?

The second part of the interview was based on people evaluating their experience, this included questions such as: What was the most positive aspect of what you

experienced today? Why?, What was the most negative aspect of what you experienced today? Why?, Which of the emergency responders (police, fire, ambulance) did you have any interactions with?, How well did emergency responders communicate with you during the exercise? What information did they give to you? How useful was this information/communication? Why?, What other information would you liked the emergency services to given you? How would you like this information to have been given? Why?, What is the most valuable thing you have learned from taking part today? Why?, How could your experience have been improved? Why?, Has this event changed your perception of any of the emergency services? How and why?, Would you take part in a similar event again? Why/ why not?

The last part of the interview was about providing suggestions for the future and so people were asked questions such as: How can agencies increase your trust in them during such events/incidents?, If this were a real incident, what would you expect to be done differently? Why?, Do you think you should be better prepared for incidents such as this? If so how?, Can you provide any suggestions to the emergency services on how to improve their response in the future? They did not always flow in this way as some people gave their evaluations when recalling their experience and other people wanted to start off with suggestions of how the day could have been run better. In these instances' interviewers would ask questions in whatever order suited to person being interviewed. The interview was ended by thanking the person for taking part and giving them a small debrief form as well as directing them on where to go next or what they should do next.

Interviews were often completed immediately after the exercise to attain the highest number of participants and to collect information while it was fresh for people. Everybody taking part in the exercise was offered the chance to take part in a Dictaphone recorded interview. Furthermore, depending on the time constraints and the number of researchers available, some interviews were carried out as group interviews. This was especially the case with exercise KMAF Warrior were there was only 2 people available to collect data from casualties but casualties came through the decontamination in groups and so it made better practical sense to interview people in groups. However, during Exercise Joint Endeavour people were ending their participation sporadically over the day and so there was 2 researchers available at any

one time to do an interview if they consented to one. However, in Exercise Unified Response the location available to the researchers was not optimum for carrying out interviews as it was in an open hanger. This meant that some of the interviews were interrupted, some could not be heard as it was right next to the site and it was hard to concentrate on the questions due to the extremely cold and wet weather. Due to these conditions casualties often chose to do an interview instead of a survey and so due to numbers of casualties involved in this exercise, researchers (Masters students) who had not been trained in doing interviews had to take a Dictaphone and an interview schedule and do their best. Therefore, although this last exercise had the most participants the quality of interviews was not of a high standard due to a combination of reasons including the interviewees using the time to give feedback about organising exercises or asking about lunch for example in addition to the environment not being optimal for interviewing in this exercise especially (outdoors on a cold, wet February week with no place to sit down or get a drink). This had the potential to impact the data collected for this exercise, further detail on the impact this potentially had on this research is discussed in Chapter 7.

For Exercise KMAF Warrior, interviews ranged from 3 minutes to 33 minutes and 22 seconds. For Exercise Joint Endeavour, 24 interviews were conducted of varying time varying time, from 4 minutes and 47 seconds to 23 minutes and 33 seconds. The time interviews ran for during Exercise Unified Response varied from 3 minutes and 21 seconds to 35 minutes and 39 seconds. Some interviews throughout these exercises were extremely short if people were interrupted or asked to stop the interview due to reasons such as needing to go the toilet, needing a refreshment or seeing a friend leave the exercise too.

Actors from Amputees in action added another layer to this research as they took part in Exercise Joint Endeavour and for Exercise Unified Response and were keen to take part in the research afterwards. Although they were the only people paid during the exercise and they are trained in some ways, they were useful as they could make comparisons to previous experiences they have had with other exercises or in some cases real emergencies that caused their loss of limb. This gave more depth to interviews and even though the experience for them is not novel, many participants from this group commented on how large scale the exercises were. They also added a level of realism for the emergency services responding and the other role players who

often commented on how realistic their injured were due to added blood. However, it was understood by the researcher that their responses to the surveys or perception questions specifically may not solely be based on this exercise alone, even though it was reiterated to them.

All interviews were transcribed, for Exercise KMAF Warrior and Exercise Joint Endeavour this was done by the researcher however for Exercise Unified Response due to the number of interviews this was split up by the research team and each person did an equal number. Due to different people transcribing interviews the transcripts were not always exactly the same in layout even though a simple transcription key and example of previous transcripts were provided. Nevertheless, the actual conversation or interaction between the interviewer and interviewee were not being analysed, the content was all that was crucially important for this research. For example, pauses were put in during Exercise KMAF Warrior and Exercise Joint Endeavour but were missed off in the last exercise at times; however this was not an issue as any hesitancy was not being analysed. All of the interviews were transcribed verbatim and the majority of them were transcribed using the following simple transcription key:

... = a pause in speech

(1.00) = every minute passed was recorded in a bracket

(name omitted) = all identifiable information to be omitted such as people's names

2.4.2 Qualitative research for exploratory purposes

When choosing what approach to take the purpose should be in mind so understanding a real-world problem, building knowledge or a theory, developing an intervention or a problem, evaluate something or to inform a larger study are all good research objectives. (Guest et al., 2013). Both quantitative and qualitative paradigms use different methods to try to find the same result, the truth (Bashir Afzal & Azeem, 2008). Additionally, both quantitative and qualitative methods have strengths and limitations, and have more appropriate and less appropriate uses (Rich, 2017). It therefore seems productive to focus on what and how each method may most benefit a given research topic at hand (Rich, 2017); as well as considering the audience, what is already known, study focus, time parameters and resources available (Bashir et al., 2008).

Qualitative methods should be used when there is a need to be inductive and flexible, when there is a need to probe into responses/observations or when more detailed descriptions and explanations need to be obtained. It is exploratory in nature and can document causal relationships. (Guest et al., 2013). As it is exploratory in nature this research has predominantly chose a qualitative approach to explore the view from a casualty's perspective. Qualitative analysis starts in the field as researchers should immerse themselves in their data during the interview or observation and then when reading and rereading the data once it is transcribed (Liamputtong, 2009).

Qualitative studies are tools used in understanding and describing the world of human experience (Bashir et al., 2008). Psychologists and researchers choosing this method should avoid feeling any 'physics envy' in which they mistakenly feel that using numeric data and quantitative methods makes their study anymore 'scientific' (Rich, 2017). The credibility of qualitative research depends on the ability and effort of the researcher whereas reliability, *a concept used for testing or evaluating all research*, in qualitative research is misleading and if this is discussed as a criterion the consequence is usually that the study is no good.

According to researchers who practice Qualitative research there is several different strategies to increase validity in qualitative research (Bashir et al., 2008). Some examples of these strategies include the training and advice given to the research team (as detailed in the section above), prolonged and persistent field work as it allows interim data analysis and corroboration to ensure match between findings and participants reality; the researcher was placed in the field throughout all exercises and at any chance to observe other exercises in order to ensure an understanding of the participants reality and so the findings could be understood. Multi-method strategies are another strategy to increase validity as it allows for triangulation in data collection and analysis and so therefore both interview and survey data was collected in all exercises to allow for triangulation. Furthermore, obtaining verbatim accounts from participants and using technology to mechanically record data (such as videotapes or Dictaphones) is another strategy that can increase validity as it means that actual quotes can be used during analysis allowing for a more accurate picture of the data (Bashir et al., 2008). This research has considered these strategies in order to achieve a high level of validity throughout the qualitative analysis process. For example, the

research team has collected data over many days in many different exercises across the country, that has enabled a level of experience and has allowed skills to develop.

2.4.3 NVivo for analysis assistance

The qualitative semi structured interviews that were carried out following the three live exercises varied in time as each individual person has their own preferences on how much they want to say and have to say. As there were over 200 casualties interviewed between the three exercises it meant there was a large bank of data to transcribe and analyse. NVivo was therefore used for the transcribed data from live exercises in order to minimize the difficulty of coding so much data by hand.

NVivo is a computer package that can assist or facilitate with qualitative analysis (Liamputtong, 2009). It is important to note that NVivo does not analyse the data for researchers, but it does assist with searching in a more time efficient manner than by searching manually and it does organise data reducing the chance of losing paper (Liamputtong, 2009 Robins & Eisens, 2017). NVivo and other similar computer packages simply have tools that help researchers to make comparisons and to build and develop on theoretical ideas (Liamputtong, 2009). NVivo has many advantages the main two being that it enables an extensive amount of data to be analysed in less time than analysing it by hand and secondly it can offer even skilled qualitative researchers' new tools such as the use of query functions (Robins & Eisens, 2017).

NVivo was used in this project once data had been transcribed verbatim and were read over again to ensure the researcher was familiar with them. The word documents containing the transcripts were then input into NVivo, and using the notes made during the exercise, during transcribing and when reading the data coding then began. For NVivo this means creating nodes and parent nodes. The steps to analysis can be detailed below as a thematic approach to analysis was taken (see section below), NVivo just assists with this process.

2.4.4 Thematic analysis

There are many different approaches in qualitative research some examples include phenomenology that focuses on individual experiences, beliefs and perceptions; ethnography that centres on shared meaning and practices; grounded theory that seeks to build structure and theory from text; conversation analysis that studies naturally

occurring discourse and narrative analysis that uses storytelling to understand phenomena (Guest et al., 2013). However, the most common analytic approach is inductive thematic analysis, that typically uses interview data and involves identifying and coding emerging themes within data; this approach has played a significant part in qualitative research tradition (Liamputtong, 2009). This method was deemed the most suitable method for this research as the output is not usually a model but is usually recommendations for policy and procedure (Guest et al., 2013).

Thematic analysis is *'a method for identifying, analysing and reporting patterns (themes) within data. It minimally organizes and describes your data in (rich) detail'* (Braun & Clarke, 2006, pg. 79). Braun and Clarke (2006) argue that thematic analysis should be considered a method. It is a flexible approach but not an 'anything goes' one as guidelines, the research question, sample size and data collection method are all flexible but still required even though it is unbounded by theoretical commitments (Braun et al., 2006; Clarke & Braun, 2017). The aim of Thematic Analysis is not simply to summarize the data content, but to identify, and interpret, key features of the data using the research question as a guide, although this question can evolve throughout the analysis (Clarke et al., 2017).

Coding is a process whereby researchers define what the data is all about, it simply means naming or labelling similar chunks of data (Liamputtong, 2009). Coding has a substantial role in thematic analysis as connections between categories and sub-categories are how themes emerge within the data (Liamputtong, 2009). Codes are the smallest units of analysis that capture interesting features of the data (Clarke et al., 2017). Once all the data is coded theoretical notions can then be constructed (Liamputtong, 2009). Thematic Analysis provides accessible and systematic procedures for generating codes and themes from qualitative data (Clarke et al., 2017). Themes provide a framework for organizing and reporting the researcher's analytic observations (Clarke & Braun, 2013).

Braun and Clarke (2006) also argue that inductive vs. theoretical thematic analysis is a point of interest. Inductive or 'bottom-up' themes that are identified strongly link to the data themselves and are not driven by the researcher's interest; they are about coding without fitting in a pre-existing coding frame or the researcher's analytic preconceptions. Conversely, theoretical, deductive or 'top down' is driven by an

analytic interest, including a lesser description of the data overall but a more detailed analysis of some aspects of the data dependant on the researcher's interests (Braun et al., 2006).

As this research was driven by the data it fits a more inductive approach, although it is understood that the research was not without the epistemological commitments already instilled in the researcher. The observations and time spent immersed within the emergency service environment and time spent with the participants in pre-briefing a then subsequently observing them in the exercise have assisted in understanding their viewpoints more as well as having a deeper connection with the data when transcribing and analysing it. As a researcher, witnessing the same events and experiencing the same exercises for the first time myself I could understand to some extent how the participant was feeling and so found that observing as much as I could gave a more thorough understanding and meaning when going through the data and when interviewing participants. Although observations are not included in the analysis, I do think they have been beneficial as they have helped shape the analysis.

For the analysis, a step-by-step guide, provided by Braun and Clarke (2006), was the approach followed in three out of four data chapters in this thesis. Firstly, the researcher read and re-read the transcribed data in order to become familiar, following these initial codes were noted down. Initial codes were then generated in a systematic way across the whole dataset. A search was then carried out for themes and codes were collated in relevant themes. All data relevant to each potential theme was gathered before a review of the theme was performed. This involved checking if all themes work in relation to coded extracts. Naming themes and defining what they are is the final step before a report is completed giving a selection of vivid examples for each theme to relate to research question. This process was followed for data chapters 3, 4 and 5. Lastly, to show the predominance of themes the number of themes were quantified and included at the start of the analysis section for each chapter.

2.5 Gaining access to three large scale unique exercises

This research uses the novel approach of collecting data with casualties in live exercises as the many advantages can help overcome some of the issues of attaining casualty accounts of their experiences of being in major incidents. However, gaining access to live exercises is difficult as they are costly, challenging to organise and

involve many complexities when trying to accurately capture data but they are more immersive than table top exercises (Cohen et al., 2012). Further challenges include scheduling time in for exercises and a lack of resources for busy health professionals although exercises do improve the knowledge and skillsets of professionals that then empower them to be prepared for any emergency (Fowkes et al., 2010). A number of emergency service personnel is required from the planning stage too as designing and implementing a scenario that elicits the cognitive and emotional responses evoked in real critical incident contexts requires the involvement of experts (Crandall et al., 2006).

The initial opportunity to work with the emergency services for this research has arisen due to the previous success of the Critical and Major Incident research team (CAMI) set up by Professor Laurence Alison at the University of Liverpool. This team of academics built a rapport over years with the emergency service practitioners through collaboration at training events, seminars and by attending previous live exercises such as Exercise Roaring Lion (Liverpool Echo, 2017). It is not standard practice for universities to be a part of the planning for live exercises as the main aim of live exercises for the emergency services is not research and so often this type of training goes ahead without participation from research teams. Therefore, for the research to attain access to the large scale, live major incidents included in this research, significant groundwork has had to be put in (a full account can be found in the Appendix 1, the researchers diary).

Following the researcher's involvement in Exercise Roaring Lion, as a master's student the researcher then volunteered to become a second interviewer for another PhD student's project. This meant interviewing 31 command level decision makers from the three blue lights services: The Police Service (PS), the Fire and Rescue Service (FRS), and the Ambulance Service (AS). Each Interview lasted at least 2 hours and it helped the researcher to become aware of terminology, procedures and it also helped to build some contacts with the emergency services. As interviews occurred on different days it also meant that emergency service personnel in the locations of the interviews (predominantly in the Fire and Rescue Training and Development Academy or Merseyside Police Headquarters) became familiar with the researcher, it also allowed the researcher to receive invitations to observe other events such as accompanying the Chief of Fire and Rescue to Yorkshire to one of their exercises or

to a JESIP 2 day training course. Some of which was done on weekends, holidays and evenings but it was considered a type of researcher training, which is essential to help become prepared to enter the field to collect data (Horsley, 2012). This is crucial for several reasons such as networking, understanding terminology of responders, being aware of risks and to understand how to not be a distraction.

Although this process is beneficial, this can be extremely time consuming and difficult at times (Steinheider, Wuestewald, Boyatzis & Kroutter, 2012). An example of some of the initial difficulties included understanding the politics of services and being sensitive to any conflicts that were occurring at the time, this meant not repeating anybody's comments or viewpoints at all as it could have offended somebody of an opposing viewpoint. Other minor difficulties included not understanding a seminar put on for the emergency services due to the number of acronyms. Eventually this was resolved by making a list of acronyms and asking somebody willing to explain them during the break.

There was also a strict ethical procedure that had to be followed in order to attain the universities permission to be a part of something as unique and realistic as exercises, especially as it involves a lot of agencies, members of the public and press attention. To gain approval all documents including participant information sheet, participant consent form, participant surveys, interview protocols, any advertisements and the risks assessments completed by the emergency services, as well as supporting statements from the emergency services had to be submitted in advance and for each exercise. Researchers then had to sit in front of an ethical review panel and explain how the advantages of this research would outweigh any identified risk (such as physical injury or negative press). Once ethical consent was granted it was agreed that written amendments would be made at every exercise, especially as each one increased in scope, severity and in numbers of casualty each time due to adding value and attaining the trust of the emergency services and planning team of the exercise. This meant that each exercise the researcher had to explain their decision to take part and had to have valid reasons for participation in order to gain ethical approval.

The following section provides an overview of the 3 live exercises included in research: Exercise KMAF Warrior, Exercise Unified Response and Exercise Joint Endeavour. A description will be given of the exercise scenario, information on

participants and measures used in each exercise. and some information on the specific researcher involvement as well as some relevant illustrations.

2.6 Live Exercises: Exercise KMAF Warrior, Exercise Joint Endeavour, Exercise Unified Response

2.6.1 Exercise KMAF Warrior

Exercise overview

Exercise KMAF Warrior was a large-scale multi-agency local training exercise that took place on the 6th of March 2014 and ran for approximately 6 hours. Agencies who participated in this exercise included a local ferry company Mersey Ferries, Merseyside Fire and Rescue Service, Merseyside Police, the Hazardous Area Response Team, the Red Cross, St John's Ambulance, Mersey Ferries, National Health Service representatives, the Coastguard, local media, local councils and the Environmental Agency. The scenario behind the exercise included a ferry colliding with another vessel whilst also resulting in the dispersal of an unknown white powder.

Due to the white powder being a potential contaminant to ferry passengers it was essential that people on board underwent mass decontamination as well as some undergoing treatment for injuries incurred because of the initial collision. Mass decontamination is a process that has two purposes: firstly, to remove the contamination and reduce the risk of adverse effects for the person and secondly to prevent the contamination of other people and places (Carter, Drury, Amlot et al., 2015). Due to the complexity involved in a mass decontamination and the additional difficulty of the incident occurring on a boat in the middle of a river, this 'incident' was declared a major incident and therefore required a multi-agency response.

All command level tiers were involved in this exercise: Operational (Bronze command), defined as '*the tier of command and control within a single agency (below and Tactical) at which the management of 'hands-on' work is undertaken at the incident site(s) or associated areas*'; Tactical (Silver command), defined as '*The tactical tier of command and control within a single agency (below Strategic level and above Operational level) at which the response to an emergency is managed Note: multi-agency co-ordination at the tactical level is undertaken by the Tactical Co-*

ordinating Group.' and Strategic (Gold command), defined as '*The strategic level of command and control at which policy, strategy and the overall response framework are established and managed for individual responder agencies.*' (JESIP.org.uk, 2019). Not all these agencies who took part in the exercise were present at the scene of the incident, but did they have representatives at the silver and gold command meetings set up as a result of the incident being declared a major incident. Gold and silver command teams took place at various police stations across Merseyside.

It was also important for the researcher to be aware that the organisational goals of the emergency services during the training takes priority and any goals of the researcher are secondary. Therefore, collecting research had to fit in around the emergency services and could not interfere with anything the emergency services are wanting to train, test or evaluate. According to the Civil and Contingencies Act (2004), one requirement of the emergency services is to maintain an appropriate Risk Register for the County of Merseyside and to assess the validity of the Register together with the preparedness of the relevant principal resilience agencies to respond to the identified risks. Due to the River Mersey, it was identified that there needs to be more training with maritime risks and with dealing with the transport of hazardous chemicals. Therefore, the three key factors that had to be involved in this exercise was: *Fire, Flooding, Stranding or Collision involving a passenger vessel in or close to UK Waters (or on Inland Waterways), The release of significant quantities of hazardous chemicals as a result of a major shipping accident and local accident involving transport of hazardous chemicals.*



Figure 2: A photograph taken during the start of Exercise KMAF Warrior. This is outside the terminal where the mass decontamination tents were set up and show members of the public waiting to undergo decontamination and show some staff starting to direct them towards the tents.

Participants

There were 70 members of the public who took part as casualties in this exercise in addition to over 50 members of emergency service staff as well as supporting staff. To recruit for this exercise, advertisements were sent via email to a number of educational establishments including the University of Liverpool, Liverpool John Moore's university and to local colleges such as Liverpool College and the Liverpool Institute of Performing Arts (see Appendix 7 for copy of the advert sent out for this exercise). It was also stressed that members of staff or supporting staff could also take part as well as students. Volunteers from other connected external agencies such as Red Cross took part too. Participants were sent a copy of the study information sheet in advance (see Appendix 2).

On the day the participants were asked to make their way to a building near the terminal to be briefed and to sign a consent form from the Ferry Service and Emergency services. This briefing was a reiteration of the emails they had been sent prior to them taking part that simply stated basic information such as they would be going on a ferry and they may get wet (they were previously instructed to wear a

swimming costume or an additional layer underneath their clothes). There were told they would not be in any real danger and that the purpose of the exercise was to test the emergency services procedures, but a safe word was given for them to use in case they were really struggling mentally or physically. Participants were unaware of what was being tested in the research following and they were also unaware of the exercise scenario. This vagueness in the pre-briefing presented a level of realism for them as role players and for the emergency services throughout the exercise.

Participants were then told to get on the Ferry and to continue their conversations as normal and were told to act natural to what was presented to them. None of the participants received any money or credits for taking part in the exercise; participation was completely voluntary. Participants did receive lunch if they wanted it, although this was courtesy of the ferry company and was not mentioned in advance. It was also made clear that people could participate in the exercise without having to take part in the research afterwards, as this was voluntary. Volunteers could also decide if they wanted to do an interview, survey or both although due to time restrictions on the day people only had time to do one or the other. If people chose to take part, they were given another copy of the information sheet to read (Appendix 2) and were asked to sign a consent form from the researcher (Appendix 3).

Of the 70 people who took part in this exercise, 53 people participated in an interview following the exercise either as a group immediately afterwards or they returned to the university to participate in smaller group interviews. There were 2 researchers carrying out the interviews for this exercise and so a protocol was used (see Appendix 4). As the survey had two parts, pre-exercise and post exercise, only participants who completed both parts of the survey pre- and post-exercise were included in the final analysis, meaning that 24 participants took part in the complete survey (see Appendix 6 for copies of the surveys). However, 46 people completed the first part of the survey and 36 completed the second part of the survey (See Table 3 below for more detailed information). Following the exercise, a short verbal debrief was given to everybody who took part and the specific people who took part in the surveys and interviews were given debrief forms (see Appendix 5).



Figure 3: This photograph was taken during Exercise KMAF Warrior and shows a casualty receiving treatment whilst still on board the ferry, it also shows other casualties around, trying to help.

Table 3: KMAF Warrior data participant demographic information

	Total participants	Gender	Average age	Occupation
Interviews	56	16 males 40 females	23 (SD=7)	47 students 6 Red Cross volunteers 3 College employees
Surveys	24	18 females 6 males	22.2 (SD=9)	All students

Specific researcher involvement

The specific involvement from the researcher for KMAF Warrior started in mid-2013 when members of Fire and Rescue met up with the university research team to discuss an exercise involving mass decontamination known as Exercise Soaring Dragon. In October 2013 ethics was granted, some surveys and an advert were designed and recruitment began to take place but due to strikes with the Fire and Rescue Service, the exercise was postponed. However, all the preparation including the participants who had already signed up was used for KMAF Warrior.

Plans for this specific exercise began in November 2013 with a meeting involving me (the researcher), Professor Laurence Alison and other key players such as the Chief of Fire and Rescue and a manager from Mersey Ferries. This meeting took place in the Fire and Rescue Training and Development Academy and aimed to discuss the scenario behind KMAF Warrior, and the parts people would take. At this meeting the researcher gave input on what could be gained from being included that was predominantly research with casualties undergoing decontamination and an evaluation of emergency service performance. Here the researcher made a verbal agreement to take lead on advertising the exercise, recruiting participants for the exercise and the research team also agreed to share all findings with the services involved by completing a post exercise report and by agreeing to present findings to senior staff.

Other members of the research team agreed to look at decision making at silver and gold level.

A couple more meetings took place where the researcher was able to ask for some space on the day to carry out interviews and surveys and suggestions on scenario were given. The researcher also took lead on recruitment and so presented numbers during meetings. The researcher alongside supervisor, Dr Sara Waring, also initiated a dry run of the day so locations for collecting data could be assessed and to increase familiarity for positioning of observers. The researcher also ensured the correct equipment was available such as Dictaphones. The research team for this exercise was relatively small with there being 3 academic staff, 1 PhD researcher (me) and 2 Masters students. However, on the day a lot more research staff took part to help collect the data and to help organise the day, although they did not have any access to data afterwards.

Following the exercise, the researcher, along with a master's student, carried out interviews with the Chief of Fire and Rescue, 2 other members of Fire and Rescue, 2 members of Mersey Ferries and 1 employee from Liverpool City Council who took part at Gold command level. These interviews were not included in this research but were used by a master's student for their dissertation. The interviews served a few purposes as they were used to gain an insight into how different agencies thought the exercise went, it was to ensure they were happy with the university involvement and it was to answer any outstanding questions the research team had on procedures carried out. It was also an opportunity to show gratitude for being included and to keep up the relationship between the services and the university. In between interviews the researcher was also invited to attend internal debriefs for Fire and Rescue and a multi-agency debrief, although it was agreed that attending would be to observe only, and sessions were not recorded so that people involved would feel comfortable speaking openly and honestly.

In addition to using the data for this research, the researcher also used the data for a number of other outputs : a 7 page report on the exercise, (see Appendix 13) the majority of which was completed solely by the researcher , 2 pages were completed by 2 Masters Students), a conference presentation which the researcher presented in

Vancouver, Canada and for 2 KMAF Warrior command seminar debriefs which was a chance to present our findings.

2.6.2 Exercise Joint Endeavour

Exercise Overview

Exercise Joint Endeavour was a large scale national event that took place in the Northwest of England (UK) on the 18th September 2014 and included over 1000 practitioners from across the emergency services and partner agencies as well as 171 members of the public playing the role of casualties or family members of casualties. This training exercise was the largest and the last exercise out of 22 exercises (the majority of these exercise being tabletop exercises). As these exercises and this live exercise in particular was designed to inform and develop the JESIP programme it was completely funded by the Home Office.(JESIP, 2014). JESIP was designed to improve the ways in which the Police, the Fire and Rescue Service and the Ambulance Service work together during emergencies. This exercise had the overarching goal of testing the new shared policies put in place by the JESIP programme and so to evaluate whether the level of interoperability between the three emergency services and other supporting agencies had increased since before the program was put into place. The evaluation created following this exercise, with specific findings from this research carried out with the casualties, went on to the Home Secretary, therefore showing the scale and importance of this exercise.

Although this exercise was larger, the same process was carried out as in Exercise KMAF Warrior to advertise for participants (see Appendix 8 for a copy of the advert for this exercise). Furthermore, the university policy was followed which means that participants who chose to take part in this research were given an information sheet (Appendix 2), had to sign a consent form (Appendix 3) and were given a debrief form (Appendix 5) with the researchers information on. This ensures people are fully informed of the research being voluntary, they understand what it is being used for and lastly they know they can withdraw their data or enquire about it as they have the details to get in touch.

The exercise scenario behind ‘Joint Endeavour’ involved a train derailing from the tracks. In doing so the train collided with a building, several vehicles and power lines.

This also resulted in a bus crashing into an adult learning centre and a cafe. This day long exercise took place outdoors in a real live set up at the Merseyside Fire and Rescue Training and Development Academy, Liverpool. This tested agencies as the train carriage was on its side and with an collapsed building it made it difficult to remove casualties to treat them. How the train had come to be derailed was also unknown too, therefore involving the police to update other services for their safety. A bus full of casualties was also a separate scene to respond to quite a distance away from the derailed train on the outdoor site.

Agencies who participated in this exercise included many Fire and Rescue Services, a number of Urban Search and Rescue Teams, Merseyside Police, the Hazardous Area Response Team, the Red Cross, St John's Ambulance, a travel company, National Health Service representatives, local media, national media, a local hospital, local councils and the Environmental Agency. Again, not all agencies were present at the scene of the incident but did have representatives at the silver and gold command meetings set up as a result of the incident being declared a major incident. Silver and Gold command meetings took place at the Joint Command centre in Bootle, Liverpool. The exercise lasted approximately 12 hours. A local hospital also took part in this exercise and took in some casualties to treat and Croxteth Hall, a large heritage site in Liverpool, also became a survivor reception centre as part of the exercise.



Figure 4 : A photograph from Exercise Joint Endeavour that shows the initial scene of the train collision with the majority of role-playing casualties still on the train but a few are laying on the floor. Observers of the exercise are also in the photograph wearing high visibility vests of either a blue, orange or pink colour.

Participants

In order to add a level of realism to the exercise, role players played casualties. Some were professional actors from outside agencies, including actors from ‘Amputees in Action’ (Amputees in Action, 2014), and others were members of the general public. In total 171 people took part in Exercise Joint Endeavour playing these roles (see table 3 for demographic information). Recruitment of these role players was carried by Merseyside Fire and Rescue via contacts they already had. Professional actors were paid for their participation whilst the remainder took part voluntarily. All casualties did receive food and drinks courtesy of Fire and Rescue for the day for taking part and all received the same briefings prior to the exercise to explain what was expected and for purposes relating to safety.

The seriousness of the injuries portrayed by the role players varied from cuts and bruises and broken bones, to head injuries, burns and contusions. Actors from ‘Amputees in Action’ played roles that involved more serious forms of injury, such as traumatic amputations, which would therefore require immediate attention due to

blood loss. All participants underwent moulage, a make-up process, in order to make their injuries look realistic and had been provided with access to an acting class prior to participating to provide information on how to play the role of a casualty, and an information card that gave details of their assigned injury. Once rescued, and following a visit to a rest centre or the local hospital (that also took part in the exercise), the participants were asked to take part in an interview or complete a survey. Again, it was reiterated that this was completely voluntary.



Figure 5: A photograph showing a member of Amputees in Action playing the role of a casualty being rescued by the Fire and Rescue Service working alongside the Ambulance Service during Exercise Joint Endeavour.

Table 4: Joint Endeavour Data Participant Demographic Information

	Total	Average Age	Gender	Occupation
Interviews	24	-	14 females 10 males	9 Amputees in Action actors, 1 teacher, 14 students/actors
Survey	30	31 (SD=13)	17 females 13 males	13 students, 9 actors, 2 Army, 1 secretary, 1 writer, 1 bartender, 1 teacher, 1 IT Broker, 1 photographer

Specific Researcher Involvement

The researcher involvement for this exercise was slightly less than the previous exercise. However, the research team for this exercise was slightly bigger and included more master's students to help with data collection. The researcher still attended all planning meetings which started on the 7th July 2014 and fed back the findings to the other students involved. The planning meetings involved more people this time around and again took part in the Fire and Rescue Training and Development Academy. The meetings were more organised and so meant the facilitator would go around the room to ensure everybody responded and agreed with any changes or any suggestions for the exercise. The input of the university was to explain what was being collected and what would be needed.

For this research casualties were needed and so as with the last exercise, the researcher oversaw recruitment and advertising and utilised the avenues and contacts had made through doing the same role in the last exercise, for example the same email address was used to email the red cross and the local colleges. However, none of the same participants took part in this exercise as previously they were not asked if they want to be contacted again for another exercise, therefore the decision was made not to email them to invite them. However, they were free to take part if they saw the advert. There

was also an agreement that to increase the realism for the emergency services, some money out of the budget would be spent on actors from Amputees in Action.

As other members of the university research team were carrying out research to evaluate the emergency service competence in regard to the JESIP Principles of Joint Working, team members also suggested the use of GoPro cameras and argued for certain injects that would test certain principles and so this was also a talking point in the meetings. Although the researcher assisted in attaining the GoPro equipment and passing it to relevant parties this data was not included in this research. There were 3 major planning meetings for this exercise attended that lasted much of the working day due to the number of organisations included and subsequent items that needed to be discussed. The researcher also had to keep the research team and participants up to date on any changes of plan following the planning meetings.

Additionally, due to the involvement of Go Pros an opportunity came up to utilise the Computer science department as they could create an additional element for the exercise that was to make an in-house social media app ('Tweety') so participants could pretend to post updates to that. This was additional data for a master's student to analyse and was requested during the planning meetings as people in emergencies now rely on social media, but real phones and social media were not permitted as they could cause other members of the public to believe that this was a real incident. The researcher therefore had to go along with other members of the research team to introduce the people from the computer science department to the key players of the exercise to ensure they were happy with the set up. It also meant familiarising the new team members from Liverpool university with the sites used by the emergency services and it took up a full day.

Following the exercise, the write up for the JESIP report commenced. The researcher's involvement in the JESIP report was writing a whole section of findings and this had a tight deadline of 4 weeks as it had to be checked over by people before it was handed to the Home Office (see Appendix 13). As well as the report, another output that came from this exercise was a fire-related research conference in Moreton-on-Marsh Fire Service college on the findings of Joint Endeavour. Help was also given to the fire chief's assistant in booking and organising the JESIP Endeavour debrief that took place on the 8th of October 2014 in Aintree Racecourse. It lasted all day and involved

approximately 100 responders who took part on the day. Alongside Dr Sara Waring and Dr Michael Humann, the participants of the debrief were split into 3 groups and each member between the three members of the University a smaller debrief was ran using post-it notes to portray people's ideas. This was fed back into the larger group and following the debrief the researcher was tasked with writing up all the post it notes (12 pages of text) into different groups so they could be forwarded onto people and organisations who requested them.

2.6.3 Exercise Unified Response

Exercise Overview

Exercise Unified Response was an international level exercise carried out in Kent, near the Dartford river crossing. The exercise itself lasted 4 days from February the 28th-March 3rd, 2016. The purpose of the exercise was to test the abilities of London Fire Brigade partner agencies from London, the United Kingdom and European Union member states to provide support in managing a large-scale incident. Effectiveness was also a priority to be measured when it came to testing the response from the front-line delivery up to strategic co-ordination as well as exceeding this and considering the effectiveness of the Government and EU levels. The overall goal was to create a legacy to ensure the learning from this event is captured, shared and used to drive improvement; it also aimed to test the JESIP principles on a national level.

The exercise was named Europe's largest exercise to date with over 2 500 emergency responders taking place over 5 days. A number of agencies took part in this exercise including all of London's emergency services, other members of the London Resilience Partnership, Kent Resilience Partnership, National teams – United Kingdom Disaster Victim Identification Team, Urban Search and Rescue Team and Hazardous Area Response Team, Relevant central Government departments, European Union Directorate of Humanitarian Aid & Civil Protection, International teams (from Italy, Hungary and Cyprus). There were also charitable organisations such as St Johns Ambulance and the Red Cross. Due to the size of this exercise, London Fire Brigade recruited people for this exercise but people taking part in the surveys or interviews had to read a University of Liverpool information sheet, sign a consent form and were given a debrief form as in the previous 2 exercises. This resulted in larger sample sizes of casualties than in the previous 2 exercises.

The scenario behind this exercise was based on a major building collapse at a central London railway station, enough to cause mass casualties and fatalities. The incident scenario was also designed to be complex and protracted enough to create a range of strategic London-wide impacts relating to transport, health, business and community related issues that would then justify an EU involvement. Justification also comes from the notion that other un-related major incidents have occurred in the UK simultaneously. The secure non-residential, commercial location of the exercise was made available for the exercise's sole use for 4 months. This allowed a highly skilled realistic and challenging construction to take place to create a convincing and complex environment, which would test the first responders and would allow a sense of realism for the casualties to act naturally. 16 train carriages were donated and 2 double decker buses, as well as old tube station stalls to make it look as much like a tube station as possible.



Figure 6: A photograph from Exercise Unified Response, a high up view of the train collision at the start of the exercise with all the responders ready to go in and rescue people.



Figure 7: A close photograph of Exercise Unified Response showing emergency responders from different agencies with all their equipment out ready to rescue people.

Participants

More than 2000 members of the public took part in Exercise Unified Response playing the role of casualties, family members or concerned members of the public. These members of the public were recruited by London Fire Brigade via social media advertising and connections they already had. Role players were not paid to take part, although they were informed that meals would be provided on the day. A number of these people volunteered to take part in University of Liverpool research following their participation in the exercise (See table 5 below for exact statistics). As with the previous two exercises data was collected from surveys given out pre and post exercise as well as interviews being carried out afterwards in order to gather a wide range of perspectives on a range of issues of relevance to the emergency services and major incident response planning. A team of trained researchers collected this mixture of quantitative and qualitative data in order to collect as much data for this research project.



Figure 8: A photograph from Exercise Unified Response showing emergency responders at work stabilising a carriage so they can rescue people from it safely.

Table 5: Exercise Unified Response demographic information

	Total participants	Gender	Average age	Occupation
Pre-exercise survey	228	122 females 106 males	29 (SD=14)	81 Students, 29 unemployed, 18 healthcare, 11 retail, 9 civil servant, 8 admin, 7 local authority, 6 education, 6 retired, 5 hospitality, 2 law, 2 military, 44 unknowns
Post-exercise survey	217	110 males 107 females	24 (SD=11)	75 Students, 43 unemployed, 23 retail, 21 healthcare, 16 hospitality, 5 local authority, 3 civil servant, 2 admin, 3 education, 2 military, 25 unknowns
Interview	185	99 males 86 females	28 (SD=11)	Not Collected

Specific researcher involvement

The first point of involvement for this exercise was a meeting in September 2015 over Skype with a University of Liverpool researcher Dr Michael Humann who is based on the London Campus. Dr Humann was attending all the planning meetings for this exercise as they took place in London, although the research team this time involved a whole class of master's students (approximately 20 students). Therefore, the researcher's role in this exercise was to liaise with Dr Michael Humann and to keep the master's students up to date as they will be helping collect the research. Therefore, briefings included showing them how to collect surveys on iPad and informing them of research questions, so the semi structured protocols are better understood. An overview of previous exercises was also provided to the master's students so they can understand roughly what the environment may be like. As there were many more casualties taking part and as they were down south the recruitment was carried out by somebody local to Dartford from the emergency services.

For the exercise the research team travelled down to Dartford, near London for a week from the 29th February 2016 and the researcher had meetings with Dr Michael Humann (The University link to the exercise) before the exercise started and once the exercise did start, it was the responsibility of the researcher to be charge of the research team of master's students as Dr Sara Waring was in charge of collecting data from responders. This meant a morning briefing of what was needed to be collected, a midday check that everybody was okay and a post-exercise debriefing to the team daily for the 4 days of the exercise.

There was a few issues that came up that had to be rectified, for example on the day interview training briefing had to be given to students by the researcher who had thought they were only collecting survey responses on iPads had to join in and record interviews due to the numbers of people wanting to participate in an interview. Another issue was related to the researcher's role in this exercise. The researcher was much less involved than in the previous 2 exercises, partly due to the scale of the exercise and also due to the location of planning meetings. Although the researcher frequently liaised with Dr Humann, he was collecting his own research and so again due to the number of organisations involved could not always outline requirements for this specific area of research. This meant that the data collected in this exercise was not

always of relevance to this study and the questions it wished to address due to not being as directly involved in the exercise planning process as with the previous 2 exercises. The conditions for collecting data was also difficult (for example, out in the open in a cold February/March, with no refreshments of chairs for people to sit on), but as this was not implicitly asked for during planning meetings it was not considered and so could have explained why there was a poorer quality of data collected.

Following this exercise, the researcher had to go through the data as quickly as possible, with the help of the master's students who transcribed some of the data, in order for the researcher to complete a 6-page summary of findings (see Appendix 15) which was added into a larger report completed by all different agencies to evaluate the exercise.

Chapter 3: The expectations and experiences of a simulated major incident environment reported by simulated casualties

3.1 Introduction: Researching casualty behaviour

'This awful catastrophe is not the end but the beginning. History does not end so. It is the way its chapters open' (St Augustine, no date)

Samuel Prince used this quote as the first line of his thesis in 1920, titled *Catastrophe and Social Change*. Based upon a sociological study of the Halifax explosion in 1917 that saw over 2000 deaths, it is recorded as the first systematic analysis of human behaviour in disasters and it tells a story of positive social relationships following catastrophes. Yet, nearly 100 years later there is still a lack of understanding regarding how humans behave, cope and react in major incident. This has resulted in the continuance of panic, hysteria and selfishness still superseding people's belief systems (Raphael, 2005). If people were more aware of the reality of human behaviour, not only could it enable them to develop realistic expectations of other people, but it could encourage them to become more prepared in case it happened to them.

Although catastrophes appear to be comprised of a multitude of misfortunes of varying scale and impact, they are all linked by the actions and behaviour of casualties adding a human element (Leach, 1994; Silove & Steel., 2006). Furthermore, researchers have found that how people expect to behave in an emergency and what survival roles they expect to take are often quite different (Prince, 1920; Leach, 1994). Although research has been carried out into what typical behaviours are displayed in a major incident, little is known about why some people behave in certain ways and what factors impact on people's behaviour. Therefore, this chapter aims to explore the expectations of behaviour and what influences casualties to behave as they do. Uniquely, these explorations will come directly from people playing casualties who have experienced a simulated emergency environment.

3.2 Studying casualty behaviour: Adaptive vs. maladaptive behaviour

Research published in the field of survival psychology has found that there are many ways in which a human can behave in a disaster (Leach, 2011, 2012). Some behaviours are adaptive meaning they are conceptual, social and encompass practical skills that can assist in survival, such as fear-flight and altruism. Fear-flight, *seeking to escape*

due to being fearful of the life-threatening situation encountered, is reported to be the most commonly adopted adaptive behaviour (Muir et al., 1996). Altruism, *being motivated to save as many other people as possible* (Raphael, 2005; Mawson, 2005), is often directed towards those with familial or social ties (Muir et al., 1996)x. However, people without such ties can also behave altruistically in a disaster (Raphael, 2005; Mawson, 2005). For example, during the 7/7 London Bombings where it was reported that the less injured casualties acted as the first responders to the more seriously injured casualties (Cocking, 2013b).

However, sometimes adaptive behaviour ceases to exist in a survival situation, possibly as psychologically a survival situation involves switching from routine actions to ones of danger, uncertainty and high information load (Leach, 2012). This can result in behaviours that are maladaptive; these behaviours can inhibit a human being's ability to help themselves often resulting in non-productive outcomes in a disaster such as death or injury (Leach, 2012). One example of this is people collecting their belongings or switching their computer off instead of immediately evacuating the World Trade Centre during the September the 11th attacks (Peacock et al, 2013). Research in the field of survival psychology also identifies three maladaptive behaviours that can compromise casualty survival during a disaster. These are behavioural inaction, affiliation and panic (Muir et al., 1996). Behavioural inaction, *also known as failure to act, 'freezing' or cognitive paralysis*, delays evacuation (Leach, 2004; Muir et al., 1996). Survival rates for this type of behaviour are low as most emergencies are time sensitive and require quick action (Muir et al., 1996; Leach, 2005). Affiliation, moving towards the familiar but not necessarily away from the source of the threat (Muir et al., 1996; Mawson, 2005), can negatively impact on safety. Panic, the non-rational flight behaviour, can cause individuals to fail to acknowledge all the choices (Muir et al., 1996). This behavioural response is assumed to be typical of casualties; however, research has shown that it is uncommon (Carter et al, 2013b; Carter, Drury, Williams & Amlot, 2014b; Donald et al., 1992).

3.3 How behaviour can influence casualties

Although panic is a behaviour that can be exhibited during an emergency, misunderstandings about the expectation of mass panic can also be something that affects a response to an emergency (Cocking & Drury, 2014). Historically researchers

promoted 'panic models' that portray how people in a crowd may cause an inherent threat to emergency responders with non-compliance, violence and irrationality (Manning, Levine & Collins, 2007; Cocking, 2013b) however more recent research has discredited this assumption as people are more orderly and cooperative (Donald et al., 1992; Quarantelli, 1988; Cocking et al., 2014). For example, in the King's Cross underground fire (1987) victim's actions were consistent with the usual rules they would follow in that setting, showing learnt behaviour and schemas (Donald et al., 1992) that unfortunately had not been adapted in the fire.

During this major incident it was found that the majority of victims had attempted to exit the burning station via the same route they entered or by the exit they had originally planned to depart from; this behaviour was a contributing factor to the 31 deaths in this incident (Donald et al., 1992). The location of the bodies also indicated that there was some structure in the sequence of actions from the victims, albeit inappropriate, therefore contradicting the common assumption that the public panic and act irrationally in an emergency (Donald et al., 1992). It is possible that had the commuters been given clear and direct information to inform them of what to do in this unusual situation they may not have behaved in that way and the consequences could have been different.

Moreover, the human brain does not concentrate on probability but fear, which means that people do not process risk rationally (Tversky & Kahneman, 1974). According to Slovic (1987), human beings are not rational risk assessors as their intuition, emotions, experiences and images play a part too. This has therefore all got to be taken into consideration when educating people about how to survive as all these factors will play a part in how people think and react. Post 9/11 for example people drove more miles instead of going on planes that therefore killed an additional 2302 people due to driving (Gigerenzer, 2004). This was more than normal, and the research took extreme weather into control. The greatest cost of terrorism may therefore be the public's response to the attacks rather than the attacks themselves.

There is also a possibility that some people cannot help themselves, even if they are physically unharmed, as they may exhibit cognitive problems due to the trauma they have experienced (Leach & Ansell, 2008; Porter & Leach, 2010). This cognitive impairment could in turn limit an individual's ability to undertake actions to mediate

the impact of the threat; making flexible interaction difficult (Porter et al., 2010). This could result in a victim who is cognitively unable to aid their own survival (Leach, 1994). Therefore, direction given by emergency responders, and potentially physically, is vital in order to lead people to safety as they may not be able to think logically and act accordingly.

In summary, to educate people to a level where they could implement the training in real life disasters or emergencies means there needs to be enough understanding on how people behave in such an incident and what influences people to behave in that way. This information could then help emergency responders rescuing and treating the casualties. This chapter aims to explore how casualties behave in major incidents in more detail by analysing accounts from simulated casualties taking part in simulated major incidents.

3.4 Method

This chapter will directly add to the research aims of exploring the behaviour of casualties in major incidents, to gain an understanding of their perception and preferences for treatment and rescue from the emergency services. Therefore, as discussed in the methodology chapter (chapter 2), a qualitative thematic analysis was conducted on the transcribed interviews with casualties and on the qualitative responses from the surveys off all 3 exercises using NVivo and following the step-by-step procedure described by Braun et al. (2006). Once familiarised with the data, the next stage is to select data that is relevant. As this chapter is focusing on casualty experiences and expectations in regards to casualty behaviour, the researcher extracted all data from the large merged dataset that mentioned how a person behaved during a novel experience such as being treated or rescued and what the person expected from the experience.

3.5 Qualitative results

For this analysis 9300 words were extracted from the entire data set, including all three live exercises. 1689 words were from interviews in Exercise Joint Endeavour, 2444 words were from interviews in Exercise KMAF Warrior, 4237 words were from interviews in Exercise Unified Response and lastly the remaining 930 words were extracted from open questions on surveys. Three superordinate themes emerged from

the thematic analysis carried out in this chapter and were found to have an impact on behaviour; these were (i) experienced and expected emotion, (ii) communication expected and (iii) experiences and expectations from the environment. The majority of data used for this chapter come from the answers to the questions at the start of the interview that ask participants to recall their experience (part A of the interview protocol, appendix 4) in addition to questions on the survey that also ask about people's experiences during the exercise (labelled 'section c: training day questions', appendix 6).

The first superordinate theme of experienced and expected emotion has 6 themes: negative feelings and emotions, realism of the exercise, altering expectations, empathy and positivity, expected panic and expected chaos and urgency. This was the most prevalent superordinate theme and took up a total of 4678 words (50% of total extracted data set). The second superordinate theme of communicated expected has 4 themes: basic information, reassurance, instructions and all information welcome. This was the second most prevalent superordinate theme that consisted of 2455 words out of the total 9300 (26 % of total dataset). Lastly, the third superordinate theme of Experiences and expectations from the environment has 5 themes: unfamiliar environment, awaiting rescue, casualties as first responders, equipment requirements and feeling unsettled. The third superordinate theme consisted of 2167 words (23% of total data set). Table 6 below illustrates these superordinate themes, main themes, definitions and one example quotes.

Table 6: Table of superordinate themes and themes for chapter 3

Superordinate theme (Definition)	Themes	Definition	Quote example
Experienced and expected emotion (How people were feeling throughout the live exercises)	Negative feelings and emotions	Unpleasant emotions or feelings that people experienced internally throughout the exercise due to the uncertainty of the situation.	[JE, I16] <i>I got quite angry while I was in there to be honest, I was kind of like getting involved with my injury and people would just walk off and I was like don't leave me</i>
	Realism of the exercise	Some of the conditions of the environments in the exercises that people reported observing made the exercise seem more realistic.	[UR, D14, I1] <i>Yes very life like, to the point where you didn't want to think too much about it because you know you could be frightened really but it was yeah, immensely life like</i>
	Altering expectations	Real conditions and seeing a simulated emergency response meant that people could develop more realistic expectations about what would happen in a real emergency.	[KW, G12, P2] <i>I thought people were going to be really in your face "what's the matter with you? You need to do this..." But no, it was not like that at all, it was quite calm.</i>
	Empathy and positivity	People reported feeling positive and having an appreciation of the work the services do and felt they could	[UR, I, D8, R7] <i>Yeah cos you can empathize with someone more when.... Cos I only sat there for two hours and like that was bad enough so... like I think... yeah you can empathize with them more and you can appreciate how... how cold and tired and...</i>

		empathize with casualties of real emergencies more.	
	Expected Panic	Panic was something people expected to feel and did not and so explained that others in their situation may feel panic or that if it was a real situation, they may feel panic, even though the realism of the exercises were pointed out too.	<i>[KW, GI3, P3] As I have said communication was so poor as was reassurance. I would recommend this undergoes considerable improvement. If it had of been a real situation, I would have felt even more panicked by their lack of attention and interest.</i>
	Expected chaos and urgency	People reported expecting some type of urgency and chaos for it to be an emergency. People assumed it was because it was not a real emergency. Although seemingly similar to the previous theme, this one is more about what people observed externally and not what they were feeling internally.	<i>[KW, GI3, P1] I felt like the hazmat people weren't taking it very seriously erm it was just obviously not an emergency 'cos no one was acting like it was an emergency</i>
Communication expected <i>(The types of information that were found to necessary in</i>	Basic Information	Basic information such as what has happened and what emergency services are doing was requested by casualties to allow them to understand more and to feel more reassured.	<i>[UR, I8, D1] But when they were outside shouting through it was almost kinda everyone started to get a little bit nervous because they didn't know what was going on and if anything the guys started to like, when they got stressed they didn't know quite like how they were gonna do it</i>

<i>this type of environment but were found to be lacking are discussed, as well as suggestions people had about how communication can improve the actions of casualties.)</i>	Reassurance	Reassurance was necessary to reduce any negative feelings and to keep everybody calm in a stressful situation.	<i>[KW, I5] Communication was so poor as was reassurance. I would recommend this undergoes considerable improvement. If it had of been a real situation, I would have felt even more panicked by their lack of attention and interest.</i>
	Instructions	Instructions were necessary to enable people to comply correctly and to avoid people copying others potentially inappropriate behaviour.	<i>[KW, R3, P1] They didn't really explain to us, like they said we had grey powder on us and stuff. Nobody explain what's going to be a decontamination process or anything like that. When we went outside to be decontaminated.</i>
	All information welcome	All information, not matter what it was, seemed to help casualties if it came from the emergency responders.	<i>[UR, D8, I4] Actually after being conscious I can see that they treat me all so good cause I could feel like they was, asking me questions how I feel now and this stuff, and they was telling me what the story was, but I was still surprised cause I didn't know everything about that</i>
<i>Experiences and expectations from the environment (This superordinate theme explains more about the conditions of the exercises</i>	Unfamiliar environment	This theme explains how the environment was reported as unfamiliar to people and unpleasant causing them to want to be rescued from it.	<i>[JE, I20] After that they carry me, and they stayed for a while and they moved me into the third place yeah and which there was the complete chaos because we couldn't understand what was going on.</i>
	Awaiting rescue	People realized they had to wait for the emergency services and that help would not be instant.	<i>[UR, I, D31, R15]It was all quite realistic actually, everyone was screaming for help, the people that were conscious were screaming for help, trying to grab onto the people, people were screaming, people were dead, it was all quite a good sort of atmosphere actually, well not good. It looked real is what I meant.</i>

<i>that people experienced)</i>	Casualties as first responders	Instead of waiting for the emergency services, casualties realized they could help each other.	<i>[UR, I6, D8] Erm... I wouldn't say you can prepare in advance, but if you were inside and you were someone that wasn't injured I think you'd have to be prepared to actually help, cos you'll be stuck in there for hours, until some actual professional help comes, so you need to be prepared that you're actually gonna have to do some work for- for the other people until you get help.</i>
	Equipment requirements	It was suggested that useful equipment was passed in when possible to be utilized.	<i>[JE, I3] yeah well if there's someone like me just get some tourniquets in and see if anyone is able to use them</i>
	Feeling unsettled	Overall casualties felt unsettled in the environment due to the realism the exercises had, which they may not have expected.	<i>[UR, I, D12 R22]so, we were like down in the pit underneath and you could hear movements obviously of the people up there and the trains were sort of banging, you know, like "get us out, get us out", you know, and you thought 'wow, this is sort of like scary'. Not, 'oh you know, this is a bit of a laugh, but...oh, okay</i>

[Key for quotation label: KW= Exercise KMAF Warrior, JE= Exercise Joint Endeavour, UR= Exercise Unified Response, D= Dictaphone , S= Survey, I= Interview (I1= interview 1, I2=interview 2 in that exercise) GI= Group Interview, P= Participant (P1= Participant 1, P2= Participant 2 etc. in group interviews)]

1. Experienced and expected emotions- How people were feeling throughout the live exercises was the most prevalent theme, indicating that it was a motivator for behaviour.

Negative feelings and emotions

A lot of the emotions people reported were negative. People reported feeling sick, helpless, scared, stressed, frightened, disorientated, overwhelmed or even angry, for example:

[JE, I13] There were times when I felt a bit sick because of the smell and all that

[JE, I18] I suppose it's a situation where you feel out of control [JE, I19] When I was little, I was in the sea building sandcastles and the tide took me out. I suppose in that way feeling helpless, that was, it took me back to that

However, as people were unsure, scared and experiencing real emotions through these exercises they also expected more information. This lack of interaction from emergency responders left a lot of people feeling confused, that led some people to turn to other casualties for help:

[KW, GI, P4] Lack of communication between the services and the victims. I felt uninformed and lost and confused,

[KW, S, P7] They give us the bag for the decontamination. I was completely lost but there were people that they helped, but not people from the emergency services

Realism of the exercise

Some of these feelings could be due to the realism of the exercises that was commented on, with people really getting into their roles. This in some ways made it seem like a real emergency for some people, especially as the conditions were real, for example

all exercises were outdoors and so people were cold and a lot of the waiting time was real as there were a lot of casualties to rescue.

[UR, D1, I18] I did actually yeah, not...I ... I didn't expect the actual scenario of the carriages to be as realistic as they were, so I thought there would be carriages, but the way, cos even when you look at it you think 'oh Christ can that actually be safe?' and obviously it is safe, but when you look at it you think cos there's a couple of bits where I thought 'well I don't really wanna get under there' in case that does- cos you've done all your safety stuff, but that's how realistic they've made it, and that the- the upper- yeah the high standard of-of that is astounding yeah... brilliant, I can't- I can't fault it at all I think it's brilliant

[KW, G13, P1] I genuinely felt like quite out of it that we had been through this bad experience and we hadn't not even been in... it's not even real... so (laughter) I felt like tired after it and grumpy, so like, so like it was actually an emergency

[KW, G12, P1] We was just left as well. We was left on the top deck. And it was so cold honestly, by the end of it I was like a block of ice (general agreement). It was freezing.

Altering Expectations

Experiencing real conditions and waiting times seemed to help with people's understanding of how responders work that could help them develop realistic expectations of the future. This is especially useful due to some of the expectations people had for speed of response. For some people they expected an instantaneous response, for others they expected minutes, but nobody expected to be waiting for hours as they had not been in a similar situation before.

[UR, D2, I12] Erm, I think... it was colder than we ever would have expected [laughs] that's for sure. Yeah it was really cold in there, erm... and but no I think it- it's pretty much what you'd expect. I think there's a lot- there's a lot more actual sitting around than you think there's going to be.

[UR, D2, I12] because it—a bit of realism? Because we were sat there for hours and you know if you were kind of scared and not familiar with how quick these things should happen—I mean people think you call an Ambulance, it should be here in 8 minutes and you should, you know be in the hospital within you know 15 minutes

Furthermore, although the emergency may not have been real, people feeling uncertain, scared and helpless is expected as for most people playing the role of casualties it was the first time they had been interacted with by the emergency services and the first time they had been put on a stretcher for example. The logistics of being rescued and carried through rubble or put through the process of decontamination is something new for most of the people taking part and so these emotions were real and did impact how they felt and consequently what they did. I possibly gave them more of an understanding of what would happen in a real emergency, again altering their expectations.

[UR, D17, I1] I think it had to be the extrication of, of the posting through the whole incident, which was uh, very disorientating, yeah it was that

[UR, D13, I16] Yeah... erm... it was like ninety degrees, it was literally on its side, which was really cool in itself but then when they actually got us out erm, and carried us over this wreckage...

[UR, D31, I9]it's quite like its more scary than you think coz obviously having you just think like coming actually so my way so we literally had to be like taken up the ladder vertically and then passed through a train and then like come back down vertically

Empathy and positivity

Lastly, people did feel some positive emotions that made them appreciate the emergency services, so these types of emotions may impact behaviour further on down the line as people report not taking the emergency services or their lives for granted anymore. It was also reported that people could empathize with real casualties more following their participation. These types of emotions not only affect people's behaviour in this exercise but possibly for future incidents they are aware of in real life.

[UR, S] you should never take anything for granted really should you

[UR, I4, D2] um, I think it just makes you appreciate your life really

[UR, D11, I3]erm well as a student paramedic I think it was knowing how somebody would actually feel and although I was a patient and it wasn't as serious as it could have although it was when they there just knowing how bored how worried and how anxious they all must have been that's what I'm going to take away from this

Expected Panic

The main expected emotion was panic as there were a lot of reports that there would be more panic in a 'real' emergency, even though the realism of these exercises were commented on frequently.

[KW, S] Seemed to run smoothly however I didn't understand what was happening for the majority of the time, both on board and off board. If it had been a real emergency this would have panicked me

[KW, S] Especially when you are in panic, if there was a real situation, we would be in panic

Casualties taking part sometimes rationalized why they did not feel panicked but believed that other people in a similar situation might panic:

[UR, D1, I1] Yeah, I could imagine somebody without background knowledge would absolutely panic without medical knowledge then yeah absolute panic just thinking

[UR, D16, I11] Well... I mean all of it really. Erm.... Most positive I think was just seeing the- all the rescue services at work, and how they interact, and how they interact with- with victims because I imagine sometimes people caught in this situation find it difficult to put it that way, very panicky, very erm... well difficult to deal with I think.

[UR, D11, I6] And erm...I didn't see anybody losing their rag or being panicky or anything like that, but I imagine it must happen.

People also predicted more panic when they were criticizing the response mainly due to a lack of communication or information. However, as nobody really did panic across the three exercises with over 300 role playing casualties it seems panic is something people expect to feel, expect others to feel and predict it to be something that the emergency responders fear.

[KW, GI2, P2] I was saying, in a real-life situation, it would have been... It would have been really bad cause everyone would have been panicking so much. there would have been no answers. They... they would have just been handed suits... you would have wanted to know why you had been handed a suit. And when you are given it, they should have said "Go in that room and put it on". No one even said that. They just handed you (it) like you knew you were supposed to change into it.

[KW, GI3, P5] I still feel the same as I did right after the event. I felt uninformed and unsure of what was happening. There was a lot of waiting around with no information of what was happening, what we would be doing next and if it had of been a real situation, I would have felt extremely panicked and worried as a result.

[UR, D32, I6]it wasn't very well communicated as to like when you were gonna leave, when you were gonna, and in real life people would be panicking being like I've just been stuck in a train for 8 hours

[JE, I18] yeah be aware that your patients trust you and if they are made aware that maybe you don't know what you're doing, it's not gonna go well and they might start panicking so if you have an issue then go to one side and start to deal with it

Expected chaos and urgency

In addition to panic people expected others or themselves in a 'real emergency' to be feeling more out of control and so this panicked feeling they expected would lead to more chaos from casualties leading to more urgency from the emergency responders. However, this was not reported to have happened in all three of the exercises even though people felt scared and if this was real. It could just be that people expect these types of reactions and behaviours due to seeing them in non-fiction books, television

shows or movies. The environment was not as people expected due to less screaming and urgency therefore perhaps leading to behave in ways that include less panic, chaos and urgency. Although seemingly similar to the previous theme, this one is more about what people observed externally and not what they were feeling internally.

[KW, G15, P5] A little bit, I thought it would be a bit more chaotic, but it wasn't quite chaotic

[UR, S] I suppose in a real-life event people are going to be screaming, and they are bound to be hysterical.

[KW, G3, P1] So erm...yeah then we were kind of waiting around to be decontaminated, it wasn't very urgent, it wasn't as it was an emergency, it was just like we were just waiting for something. Like we were waiting for the ferry but like erm...yeah generally weren't really told much.

Expecting panic may have an influence on behaviour as it may mean when people are in an emergency if they do not see chaos, screaming and other people panic then they may not think they are in danger. This expectation of panic can therefore be detrimental to the behaviour of casualties, as they may not help themselves to get out of the situation.

2. Communication expected- Communication was commonly found to be lacking from the emergency responders to the casualties in all three of the live exercises. This theme discusses what specific communication was found to be lacking, the implications of this and what suggestions people had about how communication can improve the actions of casualties.

Basic Information

It was expected that basic information would be communicated to casualties as some of them would be completely unaware of what happened but may feel better receiving some information about what is known, even if it does seem obvious to the emergency responders it may not be obvious to the casualties but will mean they feel informed.

[JE, I23] If they made it a bit more realistic...maybe like if they had a way of telling us what happened like oh, we've just derailed

[KW, GI3, P5] There was a lot of waiting around with no information of what was happening

[UR, I8, D1] I think they need to have a little bit, well from what I saw from my observation, you know I can only speak for that, is that when we were talking to them when we were explaining where we were there was a real kinda, we didn't know where they were around the carriage so like they suddenly started whacking the carriage and we were like 'woah' like that was after 20 minutes of shouting at them and we hadn't really been told like, it wasn't clear cut instructions from them.

Reassurance

Reassurance was frequently requested as it was believed to improve the perception casualties have of the emergency services and would enable them to behave more calmly and patiently. Reassurance could have been gained by talking through the steps they were taking to treat and or rescue the casualty. This type of reassurance can also provide psychological treatment some people believe as talking to the person can give them something to hold on to and fight for if critical.

[JE, I2] reassurance, reassurance, reassurance. We find quite a lot of the time that medics doing their training. I mean obviously you get the shy retiring types who don't know what to say but you get the usual guys who are sometimes on the ball and while doing their drills they are telling the casualty everything that they're doing they're telling the casualty. Not to just tell the casualty but it's helping them talk, do you know what I mean.

[JE, I13] Yeah like 'I'm doing putting this tourniquet on because it's gonna save your leg, your life or whatever'. 'I'm going to put a line in your arm'. And it's helping them but it's also reassurance and I know it's not like 'you're gonna be fine' but it's just someone talking to you

[JE, I3] me as a casualty err, I don't think you can lay the reassurance on too thick and also if someone is in kind of critical position, I would say try to find out about family

Instructions

Instructions were found to be essential for people to know what to do next, especially in Exercise KMAF Warrior in which people had to undergo decontamination. A lack of instructions from responders meant casualties were not complying with the correct procedures for this decontamination, potentially because they did not know how to. This meant people had to rely on copying each other, which could be dangerous and could lead to further consequences if the person being copied is not following instructions correctly either. Correct instructions could also avoid people feeling like their dignity is compromised.

[KW, P2, I1] When we got off the boat we lined up and were handed a big orange packet but not told what to do I stood for what felt like 5-10 minutes confused before asking a lady in a big plastic suit what it was I was supposed to be doing and she just replied with I need to put it in so I just began to copy what everyone else done and put an orange suit on.

[KW, G1, P4] Once inside we given relatively little information on what to do next, but people begun to put on the suits provided in the packs, so I followed suit.

[KW, P2, I3] We were taken into the shower area, that was ok but again it was a bit sort of... they weren't a bit they weren't very...with the whole separating of boys and girls they weren't very...sort of clear about that they just sort of went back to the line and tried to pick out as many boys as they could find but if they had said to us when we were getting changed all boys go to this door all girls go to this door were gonna take you in separately probably would of been better because people again just didn't know, they weren't made aware.

All information is welcome

It seems all communication from the emergency responders to casualties was welcome, whatever could be said to casualties seemed to help them. Even if this was not true (e.g. 'lie-talk' about response time). Communication can therefore not be underestimated as they do relax people and mean people are more likely to be compliant with instructions given.

[UR, D16, I10] It would have been worse if you were by yourself. We had each of us to talk to, but if it's just one person sitting there and they- ya know outside

people didn't reply I'd feel a bit isolated and like they didn't care. So perhaps they should lie talk... even though we can't see each other, just say ya know 'we're coming', or 'we're nearly there' or 'what would you like?' cos we said 'oh we want water, can somebody get us some water, or some food' but no one responded.

[UR, D1, 114] erm I got about 10 or 20 seconds on my phone yesterday and when I listened back to it, I laughed because erm one of the guys said scream if you wanna go faster and it's those little kind of jokes and things that sometimes actually do lighten the mood and everyone kind of relaxes a bit more so

The lack of clear and consistent communication could also have influenced people in many ways. One example of this was the impact it had on people's dignity during Exercise KMAF Warrior where a decontamination was involved, meaning people had to undress (in this case down to their underwear).

3.Experiences and expectations from the environment- The environment was something that impacted behaviour and even though the exercises were not real the environment was realistic as all three exercises were outdoors and set up to be like a real environment that most people had not experienced before.

Unfamiliar environment

The noise, smell and weather were something that made it realistic as these conditions were real making the casualties playing role players genuinely wanting to be rescued as they were unpleasant and unfamiliar circumstances to them, and they did not know what to do.

[JE, 117] No really because of the screaming babies but I didn't know what was going on, so I felt a bit lost, I also had someone missing in there as well so that was hard, and I felt a bit lost. Plus, there was helicopters as well so that was difficult.

[KW, S] Like on the ferry we were waiting to ask, like when we were waiting to get on the dock... We were waiting so long that I started to feel genuinely sick

[KW, G12, I3] One of the girls was left out on the top deck and they were sort of just left there, they weren't really attended to or done anything about. Erm there wasn't really anyone that knew exactly what was going on...it seemed to be a bit like headless chicken run around

[UR, D2, I8]] it's so real, it's quite scary how real it is well it is because someone had an amputated leg and there was blood coming out of the ligament, it looked ever so real

Awaiting Rescue

However, due to the scale and severity of the exercises also meant that people realised that the help may not be instant, or it might not come from the emergency services and so although there was an initial chaos that eventually calmed down.

[UR, D2, I3] uh quite scary I guess um and... the thing that kind of shocked me is how long it took to actually get help to people who genuinely needed it

[UR, S] everyone was shouting asking for help. It was pretty dramatic

[UR D12, I15]um, so people were sort of like climbing over each other, trying to get through the hole when the responders were coming through. Umm, but then once they got through it was just a bit mayhem but... they eventually calmed everyone down

[UR, D2, I12] You think you're gonna be in there and something's gonna be happening but of course if you think about it rationally that isn't gonna be the case, they're gonna have to get to you and... so no I think it was pretty much as we expected. Very interesting to see how everyone works, I've been terribly impressed with how professional everyone is. They really are amazing.

Casualties as first responders

Seeing the environment and understanding that help may not be instant meant that casualties started to realise that they could help others whilst awaiting help from the first responders, if they were able to. This role would also distract them from the other fears and stresses present in the environment. This can save lives and be of use to the emergency services, especially if they cannot get into the area straight away.

[JE, I3] yeah exactly, this is like what happened in 7/7 where the fire brigade wouldn't let people in there because it was too hazardous as it was a working area, so it might be beneficial for people to help themselves

[KW, G14, P4] Because I had a role to play, I couldn't do that. But yes, you could, because you would help, wouldn't ya

[JE, I12] if there's someone that's with it and not injured seriously then use them, always

[JE, I3] Well I would say that and also if you've got, if you're in a situation where you had so many casualties to deal that you can't offer them much attention beyond purely medical then get them to hold hands or talk to each other.

Equipment requirements

However sometimes equipment was required and so throwing in supplies was a common suggestion as it provides able casualties with the means to help others. Making use of any items people have collectively and being willing to help in such a complex, traumatic environment was also suggested as these situations were deemed difficult to prepare for.

[JE, I2] I was screaming at the guy please give me some tourniquets

[UR, I5, D8,] Err yeah I think, you know whether it's likely I think a lot of people are able to self-treat potentially, like AEDs and I know some stations have haemorrhage packs for bleeding, I know a lot of London stations have casualty packs in them, it may be worth having them in carriages so people are actually able to self-resource, I think this has proven that people can be trapped for a while.[Interviewer: So what type of things then would you have in these packs?] Bandages, to keep the and there certainly was a discussion of a number of us had, is that if you did have one person with skills in a confined space, even 40 people, with a small amount of basic equipment, could probably make a lot of difference. Whether that person's there or not is a random chance, if you have maybe 50 people in a space and one person who knows a little bit what they're doing.

[UR, I2, D33] Erm... [long pause] ...I don't know how you could prepare for that though; I mean one woman today had a glow stick and I thought well that's quite a handy thing to keep in your bag, isn't it? Because obviously your phone is going to die fairly quickly so you can't use that as a torch for a long period of time, and then suddenly I thought who owns a glow stick, but then I thought probably me from now on. Just in case.

Feeling unsettled

The overall realism of the environment highlighted by many casualties in these exercises, made people on the whole feel unsettled. This therefore impacted casualties by making them take the incident serious and listen to the emergency services. It also made people especially grateful for any interactions received from the emergency services as they were essential in calming and reassuring people.

[UR, D9, I9] I think, I would have said mainly with the dead bodies, there was a couple of people who obviously were dead, and they were kept in the carriage, I think they should have taken them out first to like release some stress on the others. So, I think that could've been done.

[UR, D35, I12] It was pretty realistic and also just lying in a dark rail carriage for three hours was also quite real too and mainly, I didn't realise how long I'd been there, actually probably wasn't three hours, was probably closer to two and a half possibly, yeah you lose track of time.

[UR D13, I16] firstly... I've seen people being sort of- carried and things before, I didn't realize quite how unsettling it is [Interviewer: Yeah] Its really actually quite a scary experience

[UR, D12 I7] Like they was such lovely, such lovely people they were lovely. And when they had to carry me out, cause they had to carry me out by their hands cause I was like stuck in a hole, like they was just really careful and gentle and talking to me and calming me down cause it did scare me like in real life [laughs] but yeah it was good

3.6 Discussion

This research sought to explore casualty behaviour in major incidents and the perception of casualties regarding what may influence behaviour during a major incident. This was carried out by thematically analysing the accounts of simulated casualties in 3 live exercise that simulate full-scale major incidents. Findings of people's experiences show that casualties can feel a number of negative emotions whilst awaiting rescue, people can also feel empathetic and appreciative of the emergency services following participation in an exercise too. The realism of the exercises was also discussed and was a factor in altering people's expectations of a real emergency. People expected panic, chaos and urgency in a real emergency too as it was surprising to people that they did not witness it in any of the exercises. Furthermore, communication was discussed frequently as being essential but lacking in all exercises. All information was appreciated but more basic information given, more instructions and reassurance were specifically requested. The environment played a part in how people perceived the exercise and subsequently behaved too. The unfamiliarity, feeling unsettled and awaiting rescue were all features described and in part explain people's willingness to help each other as it was realised by casualties that the response and rescue is not instant.

Overall the results are consistent with previous research, especially when it comes to expectations of panic and chaos. Panic has been discussed in previous research as a behaviour that occurs in emergency incidents but it is often discredited by recent research (Carter et al, 2014b; Cocking & Drury, 2014; Donald et al, 1992; Jeon, et al, 2009). This research supports such research and found that nobody reported experiencing panicking themselves or seeing panic first hand, but they did understand it to be a common behaviour and so predicted it would happen, even though it did not occur. This can be problematic as people were shocked at the lack of panic and so believed that it was due to it not being a real emergency as it was not as urgent and chaotic. However, research has found that urgency, chaos and panic are not common in real emergencies and if people have expected them to occur before realising they are in danger, they may not take proactive steps to save themselves. This research therefore disproves the common belief of panic being common in emergency environments as it did not occur, although the fact that people still expected it to occur shows that it is still a common myth among members of the public.

Expectations were also found to be altered during the experiences people had due to their observations. People developed more of an empathy and appreciation for people in real emergencies and for the emergency responders who come to their aid. However, as people experienced long periods of waiting for rescue, they realised they had to help each other as help from the emergency services may not always be instantaneous. This is something that has been found to occur in real incidents such as the 7/7/bombings in London 2005 (Cocking, 2013) and is also useful in helping people develop realistic expectations of the emergency services, should they be involved in incidents in the future.

A lack of communication also led people to act by helping other or added to people's level of anxiety and negative feelings. This supports previous research has found a lack of communication too and has found it is often neglected in guidance in favour of technical solutions (Carter & Amlot, 2016; Carter, Drury, Rubin, Williams & Amlot, 2013b). However, providing casualties in emergencies with more communication is something manageable for the emergency services as it something that they do, and information requested is usually already known such as basic information, reassurance or instructions. Therefore, making the necessary improvements to communicate effectively can help in several ways as people have pointed out that they will feel more reassured, less confused, less afraid and others have said that communication would have enabled them to help others.

Communication is perhaps the easiest aspect to improve on in an emergency response but could be the most underestimated tool of the emergency services. It was found to have a major impact on the casualties emotions and subsequent behaviour in these exercises and although other researchers such as Dr Holly Carter and her research group have highlighted how important it is before, it should be reiterated (Carter, Drury, Amlot, Rubin & Williams, 2014a; Carter, Drury, Amlot, Rubin & Williams, 2015; Carter, Drury, Amlot, Rubin & Williams, 2013a; Carter, Drury, Rubin, Williams & Amlot, 2013c).. This research collectively indicates that it is better to ensure casualties have a better understanding of what is going on and what they are required to do, and it can result in casualties who are compliant and less confused. Therefore having emergency responders train in how to effectively communicate could help them with treating and rescuing casualties and could help them to help casualties. For example, as previously discussed if it was possible to give clear instructions during the

Kings Cross Fire in 1987 then perhaps people could have left via the closest fire exit and there may not have been 31 deaths.

Additionally, people frequently reported feeling real emotions and reported feeling cold or physically sick during these live exercises, specifically KMAF Warrior. This can be taken as a positive sign in some respects as it highlights how realistic the exercise was and indicates that people took their role seriously and found the incident to be challenging. However, it does raise ethical concerns as this is research and so it was crucial that following interviews with role players that casualties were debriefed and given contact details of researchers should they need it to discuss their participation in addition to time given to individuals to take them for refreshments or to direct them to a place where they can rest. Nobody reported any adverse effects to taking part and researchers did make all this clear during the lengthy procedure to gain ethics. Furthermore, as KMAF Warrior was quite intrusive and included a lot of criticism follow up debriefs were also carried out to check up on people.

Lastly, there are a number of limitations with this study. Although during this research a lot of reference was made about the realism of the exercises the study still did not include real casualties and they were not real emergencies. Therefore, findings are only suggestive and exploratory and are based on people experiencing a simulated environment, usually for the first time however participants knew they would not be in real danger. Therefore, this study is limited as it did not include real casualties and so the findings of this study needs to be compared with real casualties in order to make comparisons between these predicted behaviours and experiences and real behaviours and experiences whilst under real duress real dangerous and unexpected major incidents. It is understood that in a real incident people's emotions experiences of the environment and level of desired communication from the emergency responders would be different as people know the incident is real and they could come to harm otherwise. Reliability is a further limitation as the questions asked were not designed to test specifically what was discussed as the primary aim was to inform the evaluation of the three exercises and the responders. However, as the data captured by participants still voluntarily gave this information shows it was an important and prominent part of their experience.

Based on the accounts provided by casualties, the following recommendations have been identified that can help emergency responders in future:

1. Casualties can feel many negative emotions such as uncertainty and confusion, as well as being in pain, but communicating with them frequently can make them feel more reassured and more willing to wait for help
2. Communication needs to be clear and direct and include basic information so people know what they should be doing to help themselves, to follow instructions and to avoid any further harm or non-compliance
3. People expect an emergency environment to be chaotic and full of people panicking too and so it is important to ensure people still understand the urgency and seriousness of an emergency even if there are no people panicking or visible chaos.

3.7 Conclusion

Experiencing different emotions, feeling like there was a lack of communication and the unsettling and unpredictable environment were all discussed in people's accounts of taking part in a simulated major incident. How to communicate effectively with casualties and casualty experiences and expectations may be worthwhile incorporating that into emergency service training so that they can give more reassurance, more information and more direction to people feeling uncertain, confused and afraid. It would also educate the emergency services into why people sometimes do not take proactive action if they are expecting urgency, chaos and panic. This in turn would lead to people being less psychologically traumatised, more compliant and people could help each other, especially while waiting to be rescued. Casualties can be used as a resource if given the right guidance and that would free up the emergency services to do the more complex tasks they need to do. In conclusion, this study has found that interviewing casualties can give a lot of insight into the feelings behind the actions and behaviours of casualties in simulated major incidents. This information is needed as it can help to save lives in future emergencies as it assists the emergency services with understanding people more so they can communicate better with people when rescuing and treating people.

Chapter 4. Encouraging collective resilience: the advantages to casualty cooperation during Major Incidents

4.1. Introduction: what makes people consider helping others?

The London bombings that took place on the 7th of July 2005 sparked a lot of debate about what the public can expect from the emergency service response as first responders were criticised for not responding quickly enough (Lady Justice Hallett, 2011; Cocking, 2013). The public inquiry into this found that nobody who died during 7/7 could have been saved (HM Government, 2011; Lady Justice Hallett, 2011), which is a testament to those people who chose to help, as well as the emergency services. It also highlighted how an emergency response may not always be instantaneous and so it became apparent here that bystanders and less injured casualties had to help one another until help did arrive (Cocking, 2013b). Evidence from witness testimony suggests that people were able to cooperate, and no bystander effects or panic was observed (Cocking, 2013b). This chapter therefore explores people's experiences of interacting with other people during an emergency and seeks to outline some of the benefits and limitations to this behaviour in order to provide recommendations that could assist the emergency services.

Social psychologists argue that there are many influences and biases that exist and affect human behaviour in groups. Some examples are conformity, a change in one's behaviour due to the real or imagined influence of other people (Aronson, Wilson & Akert, 2004) and loosening of normal constraints on behaviour when in crowds (Aronson et al., 2004). However, one of the most well-known bodies of research on casualty cooperation focuses on the role of the bystander effect. A bystander effect is a reduced likelihood of individuals helping with the greater the number of bystanders there are to witness the incident or emergency, this is believed to be due to a diffusion of responsibility and a diffusion of blame with the more people there are (Darley & Latane, 1968; Latane & Darley, 1968; Fischer et al., 2011). Although the saddening deaths of Kitty Genovese and more recently Dominik Brunner highlight this apathy amongst the many onlookers, research has found that it is less pronounced in dangerous emergencies where people can recognize it quicker (Fischer et al., 2011). However, the lack of instantaneous help from emergency services during the 7/7 bombings may have enabled people to feel responsible enough to help; this is also a

realistic scenario as the public cannot expect immediate help from the emergency services in all situations (Cocking, 2013b).

Panic, as discussed in previous chapters, is another common misconception as often people expect this behaviour and so meaning people are unable to help each other as they are behaving irrationally (Cocking 2013b). However, research has found that people in major incidents tend to behave in an orderly manner, even when the threat of death is imminent (Donald et al., 1992, Cocking et al., 2014). Even when the environmental cues and the ability to recognise what was happening varied in different disasters, survivors' responses tended to be more universal across events, and most often non-selfish (Grimm, Hulse, Preiss & Schmidt, 2014) and extremely altruistic, overcoming an instinctive need for self-preservation in the face of mortal danger (Rand & Epstein, 2014).

Recent research has found that the most commonly reported behavioural response to a disaster was a supportive one as many participants reported people helping each other through the incident, including preparing for evacuation and seeking information (Grimm et al., 2014). This shows that survivors had recognised the danger present yet acted in ways that did not benefit their own survival as the consequences could be a delay to one's own evacuation and an increase in personal risk (Grimm et al., 2014). This suggests that people are not selfish, overly panicked or too shocked to cooperate and means it can be argued that casualties who are not seriously injured could be considered as a potential resource to assist with the emergency services if the response requires it (Cocking, 2013b; Cocking et al., 2014); especially as the less injured are usually the first responders to the more seriously injured until help arrives (Eyre, 2006).

Furthermore, as forming groups helps to promote recovery, and often occurs spontaneously, then crowds in these types of environments should be considered a resource that can assist the emergency services (Williams et al., 2014). Uninjured bystanders can then act as 'Zero-responders' (Eyre, 2006; Cocking, 2013) before the first responders come on the scene and can be utilized. To do this successfully we should accommodate the inevitable public need to help and as they require practical information to act effectively then this should be provided (Williams et al., 2014). This already occurs in other countries such as Israel where the ambulance service distributes

first aid kits following bombings so uninjured bystanders can help casualties (Cocking, 2013). This will not only help injured people and the emergency services but is the start of the collective resilience that is a basis for personal resilience and recovery (Eyre, 2006).

4.2 Benefits of collective resilience

It is said that people who experience a major incident or disaster together create a common identity through a shared fate and may feel as though they were in it together (Eyre, 2006; Cocking, 2013b; Eyre & Dix, 2014). This is known as collective resilience that can be defined as *'...the way people in crowds express and expect solidarity and cohesion, and thereby coordinate and draw upon collective sources of practical and emotional support adaptively to deal with an emergency or disaster. The ability of established communities and organizations to recover and function successfully without top-down direction is well documented in disaster research'* (Page 294, Williams & Drury, 2009). This collective resilience of survivors and onlookers in an incident has been documented in many accounts of major incidents (Eyre et al., 2014). As well as defying the mass panic predictions it also contradicts research of a bystander effect (Cocking, 2013b).

The concept of collective resilience and casualty cooperation has also been applied to the island of Haiti where people helped one another following an earthquake on January 10th, 2010 that affected many thousands of lives (Newland, 2010). Here, fears of death fostered a sense of unity and a spirit of altruism among the survivors, leading many to take risks to assist strangers (Newland, 2010). This is supported by other research that has found that although the devastation of the earthquake was catastrophic, the people involved were stoic in their rescue attempts (Nemeroff & Goldschmidt-Clermont, 2011). Numerous other accounts have shown that in many cases casualties are the first responders at the scene of a disaster before the emergency service and other help arrives. Indeed, casualties repeatedly report undertaking initial search and rescue and medical treatment roles (Eyre, 2006).

It has also been suggested that sharing the experience with other people who have experienced the same emergency as you are critical for the early healing process of survivors (Doohan & Saveman, 2015). Not only do people suffer physically but they can suffer psychologically too following a major incident and are at risk of becoming

socially isolated as they can feel that there is nobody who understands them and identifies with their experiences and feelings (Eyre, 2006). Accounts of feeling as part of a group, feeling unity, were common in research carried out with survivors of many different major incidents although there were mixed findings of how much people physically helped other people (Drury, Cocking, Reicher, 2009b).

Nevertheless, researchers have found that social support mediates stress, trauma and other psychological problems in the immediate aftermath of a major incident (Richardson & Maninger, 2016). Being together in recovery has benefits as it stops people feeling alone and allows people to continue to feel connected that promotes healing (Doohan et al., 2015; Eyre, 2006). According to a charity founded in 1991 named Disaster Action, consisting of survivors and bereaved people from previous disasters, meeting others with similar experiences, emotions and reflections on life has been invaluable for recovery in addition to influencing emergency planning and the management of people in future emergencies (Eyre et al., 2014). This is due to developing a sense of belonging among the survivors during the incident, which is something that often not understood by medical professionals trying to manage people following an incident (Doohan et al., 2015). As there are many benefits to supporting each other, professionals should encourage this, it may even be possible to promote social support to casualties and survivors in need following major incidents via online avenues such as social media or websites (Richardson et al., 2016).

4.3 Models of Collective Resilience

Crowd behaviour in major incidents are frequently misunderstood and misrepresented as people often assume casualties panic and behave uncontrollably (Cocking et al., 2014). Crowds have been studied since the late 1800s and have even then been renowned for their danger due to the potential to go from peaceful to violent in numbers following one another (Cocking, 2013b). Although research is limited about what may encourage people to help others, why people help and what the benefits are to helping other casualties; the belief that people are selfish and irrational in major incidents have frequently been disputed (Cocking, 2013, Cocking et al., 2014, Drury et al., 2009a). It would therefore be more socially beneficial to study what circumstances make people more likely to consider helping others than the present studies that attempt to prove how unhelpful people can chose to be (Cocking, 2013b).

As previously discussed, a large body of research has found that that being part of an emergency can bring people together by creating a common identity among those effected which means that people are more altruistic and cooperative towards each other (Cocking, Drury, Reicher, 2009a; Cocking, 2013; Drury, Brown, Gonzalez & Miranda, 2015; Drury, Cocking & Reicher, 2009a; Drury, Cocking, Reicher, 2009b; Drury, Novelli & Stott, 2015). This behaviour has been found to be spontaneous and can be contagious as it is encouraged by seeing others help (Cocking, 2013; Drury et al, 2015). These are positive findings as it shows how those affected in emergencies are not an obstruction to an effective response but can be a resource for the emergency services (Cocking, 2013b). It is also important to identify when perhaps it is not safe for people to stay around and help others, especially when there is a risk of further harm.

This area of research also highlights a social identity model of collective resilience created through people having a shared fate and it also draws reference to self-categorization theory (SCT, *a social psychological theory that describes how people who had a high identification with others were more likely to report a shared fate than those low in identification* ;Drury et al, 2009a). As introduced in chapter 1, the elaborated social identity model of crowd behaviour explains crowd events as intergroup encounters in which the behaviour of one group can affect the perceptions and behaviour of another group (Drury & Reicher, 2000); Drury and Reicher, 1999). There are three key concepts related to this model; the first is the concept of social identity itself and the idea that the standpoint of the individual in a set of social relations along with the actions that are possible given such a position. The second concept is 'context' that is argued that it should not be considered as external but in relation to other groups and what the perception is of that group, for example a police perception the crowd is dangerous could lead them to deploy a riot squad. Lastly, the relationship between identity, intention and consequence is explicitly addressed as whatever the intentions of one group is, their acts may be reinterpreted by the other group that then reacts in an unanticipated way that could then create new contexts within the group. Some acts may have unintended consequences and empowerment is a product as well as a precondition of collective action.

Furthermore, a series of papers from Dr Holly Carter's research group has sought to explore this model in a related context, by looking at mass decontamination (Carter

Drury, Amlot, Rubin & Williams, 2013; Carter, Drury, Amlot, Rubin & Williams, 2014; Carter, Drury, Rubin, Williams & Amlot, 2015). It has been found that the idea of emergent shared social identity as a result of a perception of common fate can be applied to situations of a crowd facing mass decontamination as the threat and intervention is likely to be experienced collectively among people with no previous bonds and will require coordination and possibly help. Furthermore, the process of decontamination includes relationships between the crowd and the threat and the crowd and the emergency responders.

Overall, findings from this research have shown that the way in which members of the public collectively experience decontamination is likely to affect their behaviour and therefore is essential when it comes the success of the process. More specifically, perceptions of responder legitimacy, shared social identity among members of the public and a shared social identity among members of the emergency services play a significant mediating role between perceived good communication, respect for casualties concerns about privacy that in turn affects the level of compliance and cooperation from the crowd. It is therefore concluded that responder's perception of a crowd matter, social identity processes can explain the relationship between effective responder communication, and this affects their compliance, cooperation and level of anxiety.

Therefore, responder strategies are recommended by researchers in this area to promote an increase in public perception and the legitimacy of responders. This in turn promotes social change regarding collective resilience and allows a relationship were emergency responders can enable casualties to help each other, allowing them to focus on the more specialized tasks (Cocking, 2013a). This research aims to look at the experiences and perceptions of people to determine the benefits to collective resilience and cooperating with other casualties. This will be done by analysing interview and survey data from people playing the role of casualties in three full-scale live exercises (explained in chapter 2). The analysis of communication received and the help given, or not given, will go on to provide recommendations of how people may be encouraged to be of help in an emergency situation. This study hopes to build on previous work of communication strategies that encourage public perception and cooperation, by also promoting altruism to potential strangers.

4.4 Method

As discussed in the methodology chapter (chapter 2) and as carried out in the previous chapter, a qualitative thematic analysis was conducted on the transcribed casualty interviews using NVivo and a step-by-step procedure described by Braun et al., (2006). Once familiarised with the data, the next stage is to select data that is relevant. As this chapter is focusing on behaviour among casualties it was important to extract all data that mentioned in the dataset from all 3 live exercises that relates to how a person behaved and interacted with other people and what actions people discuss taking to help or interact with others. This chapter aims to cover two of the research aims by collect information on the perceptions and evaluations of the current emergency response from people receiving medical treatment or being physically rescued by the emergency services during live exercises in order to try to understand casualty behaviour more.

4.5 Qualitative Results

Results of the thematic analysis meant that 7185 words were extracted from the entire data set across the three exercises. 5 main themes were found (i) the physical benefits to casualty cooperation (1680 words, 23%) (ii) psychological benefits to casualty cooperation (1473 words, 21% of the extracted dataset) (iii) the benefits to recovery (1267 words, 18%),) (iv) the limitations casualties report when helping others (1630 words, 23%) and (v) how to enable people to help each other (1135 words, 16% of extracted data set). The majority of data used for this chapter come from the answers to the questions in the interview that ask participants to recall their experience (part A of the interview protocol, appendix 4) and some answers come from recalling their experience (part B of the interview protocol, appendix 4) in addition to questions on the survey that also ask about people's experiences during the exercise (labelled 'section c: training day questions', appendix 6).

[Key for quotation label: KW= Exercise KMAF Warrior, JE= Exercise Joint Endeavour, UR= Exercise Unified Response, D= Dictaphone , S= Survey, I= Interview (I1= interview 1, I2=interview 2 in that exercise) GI= Group Interview, P= Participant (P1= Participant 1, P2= Participant 2 etc. in group interviews)]

Table 7: Table of qualitative themes for chapter 4

Theme	Definition	Sub-theme	Definition	Quote
Physical benefits	Casualties sometimes must physically help each other as help from the emergency services may not be instantaneous	Urgent intervention	While waiting for help from the emergency services people realized they had to help each other. This would be important in a real incident as people can have serious injuries, such as traumatic amputations and could bleed to death.	<i>[UR, 16, D8] Erm... I wouldn't say you can prepare in advance, but if you were inside and you were someone that wasn't injured I think you'd have to be prepared to actually help, cos you'll be stuck in there for hours, until some actual professional help comes, so you need to be prepared that you're actually gonna have to do some work for- for the other people until you get help.</i>
		Alerting services	Sometimes people were unable to alert the emergency services and so some people were able to help by being the voice of those who could not ask or shout for help.	<i>[UR, 19, D16] And erm we were like banging for help, and then they came to talk to us, erm to see how many of us were- they were- there were, and what we needed, and what kind of injuries there were. Erm we told them, I think we had four unconscious, five- five people who couldn't walk. And we needed food and water, we'd been down there for a couple of days probably, erm and we needed bandages for injuries</i>
		Assisting emergency services	People had to assist the services when they arrived or sometimes had to help people to follow their instructions, like following the decontamination process like in KMAF Warrior.	<i>[JE, 113] We had to help the people with serious injuries and when the paramedics came, the firefighters and the paramedics said to watch out because there was this man on the floor and the cuts on his stomach and he said we were to be careful and watch him</i>

Psychological Benefits	A lot of emotional and support was given by casualties to other casualties that helped them psychologically.	Benefits to both parties	Helping other people seemed to distract people and allow them to concentrate on what they had to do, this enabled people to stay calm as they felt like a resource and had a role to do.	<i>[KW, GI4, P2] I mean the first thing they asked for is anyone first aid trained, weren't they? I mean, is there any first aiders available (agreement from group) that can help out. And then obviously you go into that mode...</i>
		Feeling isolated	A lot of people referred to feeling isolated or neglected due to being left in an unsettling environment for a long time. Some type of company or reassurance would have helped overcome this.	<i>[JE, I11] I suppose I did feel a little bit of neglect every now and again. But I guess if they would have said we'll get to you in a minute it might of helped as they are gonna come at some point. Yeah, they kept talking to the others...</i>
		Human spirit	People learnt that sometimes during an incident they must work together and help each other. This was termed 'human spirit' by one person. This helped prevent feeling of isolated or neglect.	<i>[KW, S] I am not too sure what I learnt from this experience, probably that in a lot of emergency situations, the victims have to help each other.</i>
Benefits to recovery	Casualty cooperation had benefits to people post exercise as they had positive reflections, positive future	Positive reflections	Some people may not necessarily see themselves as victims but as resources as they helped out others during the incident. It also helped people to reflect on a bad situation and see that there is still good in the world as people helping and supporting each other makes them seem less selfish.	<i>[UR, I12, D2] ...But I think there were people that were very good at it, erm... it was very interesting to see the people that were real amputees that were then made up like that, oh my goodness and how brave they are because they've already lost that limb and then they're... I thought that was really impressive that they would come along and be made up in that way.</i>

	thinking and, in some cases, built bonds with other people.	Positive future thinking	Seeing casualty cooperation or helping somebody else allowed people to think about what they would improve about themselves for future.	<i>[UR, I22, D12] Erm, I suppose.... I don't know. It's difficult because in a real-life situation we would have tried to help more with people around me, as in I would have tried to bandage wounds or stop bleeding or things like that, so I don't know.</i>
		Bond building through shared experiences	People built bonds through experiencing the same event and had empathy for one another.	<i>[UR, I14, D34] I think people would have helped each other on the train but because none of, nobody knows you know, people in the roles don't know how they'd react, nobody would know until they were prompted to so that situation might have eased off...</i>
Limitations to helping others	There were some limitations people felt to helping others.	Dominating groups	Sometimes people formed groups and although they were trying to help, some people felt they were being too dominating over other casualties and over the Ferry staff in KMAF Warrior.	<i>[KW, G11, P2] The staff were taking orders and were dependent upon the medical students... now they were only... [Another casualty:: yea, they were dependent...] They weren't qualified, they are only students...</i>
		Issues with casualty behaviour	Sometimes the behaviour of casualty's irritated other casualties as they could not make sense of it.	<i>[JE, I12] I thought that was great but just general casualties like myself, some were a bit whingey.</i>
Enabling people to help	People were sometimes keen to help but were not encouraged	Provide means for people to help	For people to help others, the emergency services should when possible provide either physical means such as supplies, or verbal means such as instructions on what to do.	<i>[UR, I3, D2] But I think the main thing was getting some basic supplies in quickly.</i>

	or enabled to help.	Missed opportunities	If the emergency services did not make use of the people willing to help them, it was a missed opportunity for them.	<i>[JE, I2] I was screaming at the guy please give me some tourniquets I can put them on these guys because I know you can't come in and get us yet so that's a negative point.</i>
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1. Physical benefits of helping each other – casualties sometimes have to physically help each other as help from the emergency services may not be instantaneous as they need to ensure the place is safe for their responders to be able to help other people. This can benefit the emergency services greatly as casualties become an extra resource.

Urgent intervention

It was recognised by casualties that they must be prepared to help one another. Physical help was therefore carried out by less injured casualties to help those more in need, this has many medical benefits and could save lives, especially if it has taken a while for paramedics to arrive. Furthermore, without less injured casualties urgently intervening to stop the bleeding of those worse injured they would die as people in real incidents such as train crashes or building collapses (as with Exercise Unified Response and Exercise Joint Endeavour), could have traumatic amputations and will need immediate help in order to stop the bleeding. Although people may not know how to apply a tourniquet properly, it is important to point out that a lot of casualties commented that they would try their best to stop the bleeding. It was found that this was better than nothing.

[UR, I11, D1]No. Umm because everyone was in the same, well 70 percent were in the same category, I think P1.[Interviewer: Right, was you given a tourniquet pretty fast when they got to you or?...]Umm, I don't, I'm not sure whether a member of the public put one on. I don't think that was part of the paramedic team. So yeah, it took a while though.

[JE, I2]Yeah, I mean traumatic amputations and because of the situation, people are gonna die even though if they threw some tourniquets in or something.

[JE, I8]You know, or had major things wrong with them like major bleeds... That's right yeah with an amputation like mine, a single left leg, you have 4 minutes to stop the bleeding. In a double amputation you would be dead in about 2 minutes, there was others as well, so they wouldn't have lasted at all.

[UR, I22, D12] Logically they could help beforehand but people even without the training may do some bandage, if it's there and it's well signposted, you're aware it's there. [Interviewer: Common sense as well.] Common sense prevails, so if you're bleeding you can pop a bandage on it which is better than nothing.

[UR, I9, D8]so... yeah as long as that was sort of communicated in the training process and, cos I think it would you know to let everybody lose 'ok we've all got- you know 'we can all tourniquet', might not be a good idea as well because you might think 'ok that's tourniquet', 'it's oozing' or something, so... but yeah on the whole I think something's better than nothing

[KW, G14, P3] We were moving casualties about an awful lot weren't we.

[UR, I6, D8]Yes so, erm... there was someone blind in our carriage, and erm someone else guided her over the holes cos of the- trains side had holes in the floor, so someone helped her over it cos she could see...erm and erm... there was...was there anyone? ... erm I can't remember if it was- so I think it was someone else with like leg difficulties so erm... yeah everyone was helping out because they couldn't stand as much.

Alerting services

Even if people were not helping others physically, they were still helping them by drawing attention to their medical needs and in some cases alerting the emergency responders in order to get help to them quickly. This is something extremely beneficial when the emergency responders are dealing with a complex work environment and a lot of people. As some casualties pointed out it may be the people not making noise that are needing the most help due to being unconscious.

[JE, I11] We were left for a while, I mean they obviously went straight to the train and it took two people from our area to run over and say help us...to, to get you know priority and get things that will help them quickly

[JE, I9] People were coming to the bus and were asking how many casualties were on the bus. We were saying 'Please come in and stop the bleeding, if not please just tell us what we can do to help ourselves' and basically, they were getting back on their radios

[UR, I3, D2]um no, but um it's just I think when there's a sea there sometimes it's hard to see the ones that are kind of top priority

[UR, I3, D2] We went and got that boy to help him, but he said like no, even though he was unconscious. No one came to help, everyone just walked past him. So... Which I don't think would happen

[UR, I3, D2] So, like there was um a girl—there were a couple of people next to me who were unconscious, and it just felt like um... sometimes in these kinds of things I'm sure it's quite normal for the most vocal to get the most attention. Whereas it would have been nice to see some of those people who were unconscious or not...

[JE, I18] I just assumed a position and after about half an hour someone got a ladder on the top of the carriage and started communicating, I think and put me into the recovery position I think

[KW, S] A lot was done by 'passengers' if there hadn't of been medically trained passengers it would have had a worse outcome.

Assisting the services

Even when the paramedics arrived, other casualties were still of physical help when under instructions from the paramedics and physically helped, alongside the emergency services. People also assisting others to follow instructions given to them by the emergency services.

[JE, I16] So, no one had assessed that, so it surprised me, but they didn't go in because they needed to check it was safe, so the first thing was hard hats and I was passing them down to everyone.

[JE, I13] We had to help the people with serious injuries and when the paramedics came, the firefighters and the paramedics said to watch out because there was this man on the floor and the cuts on his stomach and he said we were to be careful and watch him

[KW, GI3, P4] We tended to help each other didn't we.

[KW, GI3, P2] Yea we did, it was kind of like, right, "You put my mask on cause I'm not allowed to touch it"

[KW, S,] I was completely lost but there were people that they helped (but not people from the emergency services)

[KW, GI3, P1] Like if the medical students hadn't been on board then nobody would have been able to help at all. There wasn't really much help.

[KW, GI3, P2] Erm we saw a couple of staff, I think I saw 2 members of the crew the whole time that we were on the boat. Erm, a lot of first aiders, but obviously they were passengers.

2. Psychological Benefits- A lot of emotional and supportive help was given by casualties to other casualties that helped them psychologically. This was the most prevalent theme as it seemed that helping others benefited the casualties the most psychologically.

Benefits to both parties

Helping other people seemed to distract people and allow them to concentrate on what they had to do. Having some responsibility enabled people to stay calm as they felt like a resource and needed to help others. The people who were physically helping other people reported going into a 'mode', although the people they were helping were receiving physical help from them, it seems the people giving the physical help seemed to be psychologically stronger as they were more focused on helping others than on what they had been through or their own injuries,

[UR, I14, D12] ...and it also gives them something to do erm one other time I saw them send a paper through and say can you make a list of everyone's names and their ages, it calmed everyone down immediately, it gave them something to do so that's also a real strong point

[UR, I14, D31] I guess be more aware of what's going on in my own surrounding and to remain calm if anything does actually happen, and if people are injured and I'm not, try and look after them until a responsible agency steps forward and looks after and takes care of both me and that person.

[KW, GI4, P4] But we probably go into that mode cause today we all went to go, didn't we? And thought, "Hang on, I'm a passenger"

[KW, GI4, P3] Yea because we saw him on the floor, no one has helped him. Everyone had left (group agreement) and then me and N were like upstairs...helping him

[KW, GI4, P1] To be fair, we took it seriously, didn't we? We had four casualties

Preventing isolation

A lot of people referred to feeling isolated or neglected due to being left in an unsettling environment for a long time. Some type of company or reassurance would have helped overcome this. Being around other people can provide much needed reassurance to those struggling with the incident and many people feel supported. Simply talking to each other seemed to help people not feeling isolated and neglected.

[KW, GI4, P2] I think some people were left far too much, like the head injury or whatever, but then that's probably talking as a first aider rather than a mere passenger, weren't we?

[JE, I7] As I said the third time when they should of left someone in charge of me and someone to stay with me, but it was nearly 1 and a half hours. If I would have had that from the beginning... [Interviewer: then you wouldn't of died three times] Exactly and the guy was he was organise everything. Suddenly they get organised yeah. Someone was with me, talking to me and then one of the ladies she was very good. She was spot on doing everything

[JE, I3] It's when your left on your own and your vulnerable that you erm...feel most hopeless and despairing.

[KW, GI4, P2] There was very little presence when they put us all in one room. They kind of just left it. We had no explanation or anything like that.

[UR, I, D2, R4] Yeah yeah, what we'd do differently and we kind of got left, we got left alone quite a bit. And it was weird cause there was one, one woman who we said if it was real life, we reckoned she would have died...

Human spirit

Being supportive of one another seemed to help people to stay calm and to see it as the positive side to the incident occurring as some mentioned a 'human spirit', that was essential for others who felt they only had each other felt neglected and so were looking to each for help.

[JE, I16] How can you really? You don't know, you can't wrap yourself in cotton wool and not go out but just be vigilant and just you know see what's around you and see people around you. Accidents happen so yeah human spirit, club together and help people out. In times like that I hope people will really...start helping people out

[UR, I9, D2]So, I think they did quite well in the actual, in the initial treatment bit because everyone, all the casualties were talking to each other so there was a bit of reassurance from other people who were injured but once you sort of left the... and you're going through the tunnel sort up to the treatment centres and that was completely new staff and stuff

[JE, I3]Well not just for reassurance but I heard this talk from this SF instructor and he was saying that if you can get the patient to feel like they can contribute to their own survival then it's not as good as reassurance, it's not just passive they are actively fighting to save themselves.

[KW, G3, P5]Initially there was someone with a head injury, someone having a panicking attack, someone with a broken arm and a broken leg [laughs] and only me and [name omitted] who were alive and got told just keep them calm, keep them calm, keep them calm

3.Benefits to recovery-As well as the many benefits to casualties helping and being helped during the incident, casualty cooperation during the exercise seems to have some benefits after the incident too.

Positive reflections

Some people may not necessarily see themselves as victims but as resources as they helped others during the incident. It also helped people to reflect on a bad situation and see that there is still good in the world as people helping and supporting each other makes them seem less selfish: Witnessing how other people behave altruistically also can have lasting effects and can make people better psychologically, even if that is only because it distracts them or gives them something good to come out of a bad situation. Witnessing something so awful can make people feel lucky too.

[UR, I13, D12] Yeah maybe they should of asked the people (Name omitted) for example so we were in this carriage and they were drilling through the floor they had like one half where there was bunch of stuff that would be really hard to saw through and then other half was a big empty space, so they should just ask which way should we go which ways the best [Interviewer: so, asking for more response from?] yeah they can just ask , yeah, they forget that you're a resource as well

[UR, I6, D1] Meeting new people and you know seeing how people work together, like when we were on the train people were trying to help other people that needed medical attention first, to see people weren't being so selfish and trying to get off, cause it was very squashy and cramped, but seeing people not being so selfish and willing to help other people, let them out before them was amazing to see, and it's a group of strangers like we've never met before as well, it was quite good.

[UR, I12, D2] ... Erm... and just the sort of scale of it is huge, you know, and I know we... don't really think of it but the number of fire engines, the number of ambulances, the number of people that are there getting you out, you've just been incredibly lucky yeah, but you just feel so lucky you think- god forbid anything like that happens to you. That you're in the best possible... care. Nobodies gonna try harder than they are to get you out in one piece

Positive future thinking

Additionally, although these were only exercises, it still allowed people to reflect and think of what they could do differently in future and a lot of the time it was to help other people. They were not thinking selfishly of how to help themselves. Even though these were exercises, people were commenting on what they could do to improve their chances of survival if they were in a real situation and so watching other people help may have inspired them to do better next time.

[UR, I10, D2] I think if this was a real situation I think you would have people that are less injured would be helping people but in this situation, I don't think they was briefed to do that [Interviewer: okay] so nobody helped because that's just how they was told to do it [I – was there anyone, so I've interviewed one person today, so it wasn't on his card but he did help other people was there no one that did that?] not that I know of, people talked about if it was really happening I would help and

other people said there was nothing they could do to help, and I just chatted to them saying well actually, you use your shoe laces or my boot laces

[UR, I6, D1] Next time I'm on a tube (laughs)... erm I think next, I think if you ever were in that situation coz I think you would act you would act differently, certainly I wouldn't just be (name omitted) standing there with a broken hand, I think I'd actually be helping people ...erm... but I'd think ... yea I think it's just knowing not to panic if it really happened and knowing that they're there to help you.

[UR, I5, D2] Uh I don't know, it's a bit of everything. I mean, kind of all sitting there talking about um—I was with a little, with a group and we were all talking about what we would do differently and how we would change things and stuff like that, and then just the whole kind of...once I left the kind of area, how quickly things happened from—yeah it was just literally leaving there and it as all kind of strategic and...

Bond building through shared experiences

People helping each other can also have long lasting benefits as they build bonds and so could become friends due to this shared experience. It seems this shared experience is unique to the people involved in it as they can all emphasize with one another due to sitting together and enduring similar things together, which nobody else may understand:

[UR, I22, D12]: I've met some good friends and some of the staff were lovely.

[UR, I5, D2] Well I think it's, its, I think it was more memorable because like everyone was there, and then once you're out you kinda get a—it's almost a one to one, whereas in, in the situation there was like maybe fifty of them and two thousand of us...

[UR, I1, D7] [Interviewer... Erm so what was the most memorable thing about your experience?] Casualty: Erm... definitely the people. [Interviewer: Yeah?] The people I met on the train. Even though I hadn't met them it was weird, you kinda got this bond. It was weird as well cos I think that in a real-life situation people around you would affect how you feel. Especially with your injuries, it's good to talk to others around you

4.Limitations to helping others- There were also a few limitations to helping other people, the main one being that people did not like receiving orders from a group of first aiders on board the boat during KMAF Warrior. They did not respect the authority or always agree with the actions of these first aiders. This seemed in part due to the fact that it took the emergency services a couple of hours to get the boat to shore to treat the people and so the passengers on board who became casualties had to spend a lot of time together.

Dominating groups

One of the problems was that people felt the medical student first aiders was dominating other people and even challenging the medical professionals when they came on board. The dominating was not accepted by other casualties as they did not always agree with their decisions and was aware that they were not qualified as medical professionals and the fact that they were trainees or students was often mentioned by other casualties.

[KW, S] I had issues with the trainee medics. Because they was giving orders to the Mersey ferry staff. The Mersey staff was openly taking these orders from unqualified students.

[KW, G11 P1] ...but there was a lot of them, the 5th year medical students, they were like really dominating what was going on. They were even giving instructions to like the fire-fighters

[KW, G11, P2] It was bad, because they don't know the procedure and so that guy was arguing with the Hart response guy on triage, like really, you're going to argue with them on triage? So, if he was listened to, that would of been bad, so they actually said no listen mate we are in control now...and he got really offended by it, but it was the right thing to do.

[KW, I4]I think that in some ways though like they can the people that were helping like with casualties they can sort of say like look this is what has happened so far but give the control over to them and be like but therefore I know...blah blah blah

[KW, I2]cos he was trying to say well we've already triaged them. And they were like no they are not triaged until we have looked at them. Because if you reply on

what other people say, they thought both of our femurs were broken because the guy. The med student had told them. We had a fibula and a tibia. It could have been awkward. I mean there was a girl downstairs and she was like do not move, do not move your gonna get your leg broken. She was just like commanding everyone to move me down the stairs. I don't know she was like 'you have to go down the stairs' and I was like 'you're not supposed to move until the fire and rescue comes and gets me'. And she was like no you can move I've seen people move so that was really awkward that they listened to that.

[KW, G12, P2] They are not qualified. The staff, the staff shouldn't rely on the medical, just because they say they are medical students, you know, they might be first year. So, I thought that was a bit questionable.

[KW, G12, P3] Yea and if he'd been crying... They looked after (name) even though there was nothing wrong with her. Just because she didn't know what was happening so, obviously it's not their job, but critical people were getting left and the staff were like going to see (name) because she was actually crying... so they left everybody else.

Issues with casualty behaviour

Some other problems seemed to be the behaviour of other casualties were not well accepted for a number of reasons. Some were 'whingey', one reported others climbing over each other for a short time and others stated the noisiness of a group was a problem. This may prevent people from helping if they are not happy with the behaviour of them.

[UR, I19, D1] So, it was...really really erm... really noisy. So, it was noisy anyway cos people were screaming, and erm... and... I think.... Erm... cos you didn't understand what they were [sic] saying as well and it all sounded quite frantic, even though it probably wasn't...it...it felt like you were in something really really dramatic,

[UR, I5, D8] Cause we were pissy [Interviewer: Was there a lot of you as well?] There was a lot of us in that space, yeah trampling over people, so in a real situation we would probably have caused quite a lot of pain, quite a lot of umm you know the HART paramedics had enough to keep their feet as best they did, we were

knocking them quite a bit but we weren't pushing with as much force as in say reality if we were in that position...The modern world isn't full of lovely people behaving in the 60's as it was, I guess the demographic of the scenario's quite a lot younger, a lot of 18-year olds, a lot of people in their 20's but then that's the commuting, that's the working age...Yeah, I mean even in reality, in reality the age is probably a lot younger then people are more forceful, people are more direct...Yeah, getting the tube here today probably reflected, people would probably be even more angry than what we were.

[UR, 17, D16] [Interviewer: How was the experience, I mean of you being in there waiting for the services?] It was horrible, I didn't like it. [Interviewer: OK can you tell me a bit more, like what was happening, what was distressing about it?] Umm everyone kept shouting and banging to get attention, people were arguing, it stunk, there was loads of rubbish everywhere, it wasn't a very nice environment to be in, it was dark.

[UR, 18, D19] Yeah! So, it's good. I mean they probably are on a major incident so um, and then the only thing I would say is there are a lot of young people here today, in terms of casualties and that's, it's good but it, when you were in a confined space with children, essentially, they are children, 16, and they're throwing stuff at each other and just

5. Enable people to help- A major point brought up throughout all the interviews was that people were sometimes keen to help but were not given the information or equipment to help others and so often they stressed the importance of how the emergency services should enable them to help other people. This might be the best option as it might take time for all the help, equipment and the safety approval to arrive and so casualties helping each other might be the only option for a short while

Provide means for people to help

. The emergency services could enable people to help others by throwing in a few basic supplies when they first arrive on scene, this could buy them time to secure the area and to put together a treatment and rescue plan. People could be enabled to help others by being given some verbal direction or instructions.

[UR, I3, D2] Um, and things like—just would have liked to have seen say you know twenty dressing packs put you know through to that location as soon as possible. You know twenty, you know splints or, you know just like—or, or, um a few canisters of oxygen, just get them straight in there so that...

[JE, I12] yeah well if there's someone like me just get some tourniquets in and see if anyone is able to use them

[JE, I19] I suppose communications, and less awaiting instructions and just doing something. If you've got tourniquets throw them in., we might not do it properly but it's better than nothing

[JE, I20] Leaflets, information anything. Maybe on how the agencies will work together, what they expect from you, what you can do to help...that sort of thing.

Missed opportunity

Sometimes the emergency services failed to pass in supplies which to some people felt like they missed an opportunity as casualties who are less injured can be a resource to help the emergency services. People stated that this was disappointing and something that should be done as it does happen in real life incidents such as 7/7 and without casualties helping each other, they might die. This missed opportunity could have meant people felt helpless or like they have not contributed to their own survival or the survival of others as the consequences of not enabling people to help others may result in death as people with traumatic amputations can bleed out and die.

[JE, I9] People were coming to the bus and were asking how many casualties were on the bus. We were saying 'Please come in and stop the bleeding, if not please just tell us what we can do to help ourselves' and basically, they were getting back on their radios.

[KW, G13, P2] One guy did say is there anyone with any medical knowledge and I was like yes, I know how to put a tourniquet on but there was so many people screaming and he didn't hear me. So, a missed opportunity there

[JE, I2] I was screaming at the guy please give me some tourniquets I can put them on these guys because I know you can't come in and get us yet so that's a negative point.

[JE, I18] And if there were people able to say in this situation you know I'm a first aider or you know erm some sort of certification who can help. if there was members of the public who could help out and that would help because on the train, if there was an emergency on the train and no emergency service but someone who said look, I can help I know what I'm doing then...

[UR, I5, D32] So, you can kind of literally you're a member of the public, but you can still help the paramedics as well

4.6 Discussion

This research has found that casualties helping each other during an emergency has several benefits to the casualties being helped, the casualties who are carrying out the proactive cooperative behaviour and to the emergency services too. This research has found that benefits can impact people physically, psychologically and can even provide long lasting benefits by assisting people with recovery. This chapter has also sought to explain how the emergency services can enable people to help each other by giving verbal instructions or perhaps providing some equipment. The key to casualty cooperation seems to be to see casualties as a resource instead of a hindrance. Some limitations were also found as not everybody found it easy to deal with being assisted by other casualties.

This research seemingly supports previous real-life cases that have occurred as during all three exercises no direction was given to help other people and yet like the Haiti hurricane (2011) and like the 7/7 bombings (2005) people spontaneously help one another. Even though this was a simulated emergency it was similar to real emergencies were it has been found that people seem to be more willing to carry out behaviours that help others rather than behaviours that show them to be selfish (Cocking, 2013b). The more time casualties had with each other the more help they seem to give one another too as KMAF Warrior meant casualties were together for a longer time on a ferry (See chapter 2 for more details) and here casualties organised themselves into groups and even had their own hierarchy, although none of this was part of their direction as role players. Although there were some complaints about this, it was more about the qualifications of these people and none was about their intentions to help other people.

This research also supports the idea that being in an emergency can bring people together by creating a common identity among those effected which means that people are more altruistic and cooperative towards each other (Cocking, Drury, Reicher, 2009a; Cocking, 2013; Drury, Brown, Gonzalez & Miranda, 2015; Drury, Cocking & Reicher, 2009a; Drury, Cocking, Reicher, 2009b; Drury, Novelli & Stott, 2015), even though this was just a simulated emergency it seems people spontaneously helped each other (Cocking, 2013; Drury et al, 2015). There was also support from people in interviews from all three exercises that supports the social identity model of collective resilience as people seemed to report having a shared fate that brought them together.

Exercise KMAF Warrior, which included a mass decontamination, also had similar findings to the work carried out by Dr Holly Carter and colleagues as it was found that the idea of emergent shared social identity occurred as a result of a perception of common fate. The crowd awaiting mass decontamination in this exercise seemed to stick together and help each other with following procedures, especially as they felt the instructions from the emergency services were inadequate. Other exercises also reported similar findings as people awaiting treatment or rescue also felt they were in it together and so helped each other, especially when lacking in instructions from the responders. This also means the findings of Carter's work can be generalised as it seems the collective experiences of the public can affect their behaviour, even in simulated emergencies people spontaneously helped each other and made real friendships as this was still an experience only each other would have understood.

Overall, people did report making friends and bonding with the people they had been around when awaiting rescue and treatment. Although this could have been because of the time spent together, there were reports that it was also due to empathising with one another especially as they endured real conditions of feeling cold, tired and hungry, especially during Exercise Unified Response when positioned in a derailed train during an icy February. Although this research was carried out on simulations and not real incident the experience was still unique and nobody else may understand what it feels like to be taking part. This supports research by Dr Anne Eyre who suggests that people who experience these types of incidents together can relate to one another and form groups (Eyre, 2006).

The findings of this research also had many more benefits as it provided some practical implications for the emergency services such as the importance of enabling others to help. For example, by providing verbal instructions to help people to help each other, or to provide some resources that could save lives. As people report doing this behaviour anyway, there may be advantages to getting some instructions and support from the emergency services to enable people to do things right as one of the limitations of this finding is that people may not know how to help and could perhaps cause further damage, for example when applying a tourniquet . Nevertheless, people can be a resource and could possibly help therefore should be enabled to by the emergency services (Williams et al., 2014).

Although this was a unique experience and people did report the behaviour of the casualties who helped during Exercise KMAF Warrior specifically to be a problem, this may not be the case if the incident was real and people really did have injuries they wanted to help with as in this case any help even if it is by people unqualified who are trying to take over may be less of an issue when in pain and in need of any treatment to help them. One of the limitations of this study was that it was conducted with role-playing casualties during simulated exercises and so findings may be different in a real incident, for example the level of help given by people may be different in a real incident as people would be injured or in more shock from what had happened . However, as all the helping behaviour observed and reported occurred spontaneously as it was not given in any briefs to the role players. This is something that should be carried out with real casualties of major incidents in the future as it would give an indication of what factors encourage this behaviour. One further limitation here is similar to the limitations found in the work of previous researchers in this field and it is the bias of social desirability, this means that people will want to come across as being nice and doing the right thing to the interviewer, even if this may not be the case. Although there may be instances of this, the focus was not to ask people what they did to help other people and often people reported how they saw others help and so it did not reflect on their behaviour positively or negatively.

Nevertheless, more research that focuses on the positive aspects to casualty cooperation and what makes people more likely to proactively help others does need to be carried out in real incidents so that this type of behaviour can be encouraged and used to the advantage of the emergency services. It is hoped that this study that has

highlighted the many benefits associated with casualties helping one another and so will encourage further research to be carried out in the future. This can save lives and can assist with the emergency services and with people's psychological recovery.

Based on preferences provided by casualties, the following recommendations have been identified for the emergency services:

1. Encourage casualties who are willing to help each other as there are many benefits. It not only benefits the person being helped physically but the person helping can benefit psychologically too, especially in the recovery phase of the incident. It allows the emergency services to carry out more complex tasks too.
2. Provide casualties with information and/directions on how they can help themselves and each other as it is common for casualties to form groups from being part of a shared experience with a shared fate.
3. Enable casualties to help themselves and each other by providing them with equipment if possible, for example tourniquets.
4. If physical supplies or information cannot be given to people to assist others, then still include people by encouraging people to talk to each other or do things such as hold hands as it will give them a job to do that will keep them busy and out of harm.

4.7 Conclusion

Overall, this research has found that the benefits far out weight the negative points when it comes to encouraging less injured casualties to help however they can. These benefits have been found to have advantages for everybody involved as the people helping can positively reflect on what they have done and they are assisting the emergency services who have many tasks to complete. Due to this the emergency services should take this on board and should have systems in place to encourage this by either providing verbal instructions to people while they do other specialised tasks or before they have entered the site in addition to providing people helping with equipment such as tourniquets or bandages. Nevertheless, casualty cooperation occurs whether enabled or not. Furthermore, as casualties helping can saves lives during the response they should be considered more of a resource by the emergency services.

Chapter 5. Evaluating the emergency service response: an exploratory study into casualty preferences for interactions with the emergency services

5.1 Introduction: Importance of communication

There are many examples of natural and man-made disasters occurring over the past few decades; most of these incidents have led to legislative reform to either improve infrastructure or the operational response, to minimize future risks. However, suggested changes have not taken into consideration how to manage and communicate with the public even though communication can be a powerful tool for preventing further casualty injuries (Civil Contingencies Act, 2004), reducing panic, anxiety and maladaptive behaviour (Leach, 2012), and increasing trust and compliance (Carter, Drury, Rubin, Williams & Amlot, 2013). In the aftermath of a large-scale natural or manmade disaster, the effectiveness of first responders such as Police, Fire & Rescue and Ambulance services continues to play a key role in determining the amount of time required to restore the new normality (Aldunate, Schmidt & Herrera, 2012).

Communication is recognised to be a critical factor in determining the success of the emergency response as it has the potential to prevent conflict and confusion (Amendola & Marchi, 1996; Smith & Purdy, 1990). Communication with civilians during emergencies is obligatory (Civil Contingencies Act, 2004; Cabinet Office, 2012), and should contain sufficient information for enabling the public to minimise any risk to personal safety and the safety of others, along with information regarding the reparation of damages that occurred within the disaster (Seeger, 2006). However, this can be difficult to achieve due to the speed at which events unfold (Amendola et al., 1996). Furthermore, frequent and intense training allows the emergency services to become familiar with, meaning the operational elements of a major incident response can be carried out to a high standard; however, managing the public's unexpected actions with effective communication is not often a part of these training drills (Robertson et al., 2012).

Given the importance of effective emergency service communication with the public for securing public trust and compliance, and ultimately saving lives, this chapter aims to explore current casualty perceptions and preferences regarding emergency responder communication and has future implications for policy makers and agencies interacting with casualties following an emergency. This chapter also has practical

implications for emergency responders in terms of developing training to improve communication with the public in order to facilitate better casualty management and higher levels of public trust.

5.2 Improving emergency responder communication

Despite advances in technology, communication still predominantly remains a face-to-face task that involves emergency responders speaking directly to the members of the public caught up in the emergency (Garrett et al., 2007; Leach, 1994). For example, during the Fire at King's Cross station (Donald et al., 1992) virtually all the people involved attempted to leave the station by the way they had entered or via the route they had been planning on leaving before the fire, and not out of the nearest exit. If the commuters had been given clear and direct instructions to inform them of what to do in this unusual and ambiguous situation they would have perhaps behaved differently, and the consequences would have been different (Donald et al., 1992). This demonstrates how crucial it is to understand human decision making and how to communicate with people in emergencies.

The goals of communicating with casualties have been explained as being to (i) provide instructions, (ii) gain compliance, (iii) decrease anxiety and panic, and lastly to (iv) secure trust (Carter et al., 2012; Carter et al., 2013; Wray et al., 2008; Wray et al., 2006). In order to provide instructions and to gain compliance, giving accurate information directly to casualties is essential (Donald et al., 1992; Carter et al., 2012). One component of importance is that instructions are feasible and justified (Wray et al., 2008). Neglecting to adequately explain the purpose and benefits of instructions or procedures, such as decontamination, could be perceived as an illegitimate denial of public rights and respect; it is also found to reduce the likelihood of people complying (Carter et al., 2013). Therefore, effective communications regarding instructions is vital for securing compliance and in turn, public trust (Wray et al., 2006). Furthermore, effective communication could impact on the amount of trust and confidence people have in responsible agencies (Carter et al., 2012; Carter et al 2013). Emergency responders' interactions have also been found to affect the public's experience and compliance with decontamination procedures; failure to communicate effectively can lead to anxiety about the process (Carter et al., 2012; carter et al, 2013). This suggests

that research into the risk communication given by the emergency responders is essential as it may improve the perception of the response.

Moreover, a series of studies including a visualization experiment and field experiment carried out testing the most effective communication strategy during mass decontamination revealed that a communication intervention in which people received both health focused explanations about the process of decontamination and sufficient practical information was perceived to be the most effective and in turn resulted in the highest levels of expected compliance (Carter et al, 2014a; 2015b). This communication strategy resulted in the most efficient progression of participants through the decontamination process, the fewest observations of non-compliance and confusion, and an increased perceptions of responder legitimacy and increased identification with responders, which in turn resulted in higher levels of expected compliance during a real incident, and increased willingness to help other members of the public (Carter et al, 2014a; 2015b).

It is therefore recommended that responders communicate openly with members of the public about the nature of the incident and the actions that are being taken; communicate the health aspects of decontamination, explaining why all the steps involved in decontamination are necessary and how decontamination will protect members of the public; provide sufficient practical information during the decontamination process, such as how members of the public should undergo the decontamination process and what actions they can take to reduce risks to their health and lastly responders should respect the public's concerns about privacy and modesty (Carter et al, 2015a). This is essential in order to facilitate the successful management of incidents and in this specific case, mass decontamination, as effective responder communication strategies improve people's perception of the emergency services, increase compliance and reduce anxiety (Carter et al, 2014a; 2015a; 2015b).

The present research will utilise data from 3 large scale live simulated exercises, the aim of this chapter was to examine the public's preferences for communication and to gain a view of their perception of the emergency services, based on their evaluations of the emergency services during the live exercises. Based on previous research, it is predicted that casualties who receive adequate information during the exercise and who feel informed during the exercise will have a greater perception of the emergency

services. It is also predicted that people who report a lack of communication from the emergency services will have a lower perception of the emergency services. Findings from the interviews and surveys will also be used to provide recommendations for emergency services in the future.

5.3 Method

As with the previous 2 data chapters, data for this chapter came from a complete dataset made up of interviews and surveys from all 3 live exercises (more detail found in chapter 2). In order to gain access to collect this data it was agreed that the researcher would provide a report and presentations on the perception casualties had of the emergency services, consequently questions were more framed towards this in the survey as well as in the interview's. Therefore, as there was a large body of data available covering these points and some statistical data from ratings scales, it was decided this chapter would be analysed in a few ways. This was found to be beneficial as both quantitative and qualitative methods have different strengths and weaknesses and a combination of both approaches provides a better understanding of a research problem (Guest et al., 2013).

Analysis of Interview data: As with the previous two data chapters, responses from interviews from all three exercises was subject to a thematic analysis in order to qualitatively generate themes. Data was extracted from the larger dataset by the researcher familiarising themselves with the data and selecting any data that refers to a rating of the emergency services, their response or the treatment. In addition to this any data that related to the preferences of people for the treatment, response or treatment was also extracted. The prevalence of themes was also measured by carrying out a content analysis to provide the reader with percentages of words for each theme. Results can be found below.

Analysis of survey results: In this chapter quantitative statistics from the surveys were used for confirmatory purposes to support the qualitative findings in the interviews. The quantitative statistics used are the statements people were asked to rate on a likert scale from 1-10, *1 being strongly disagree, 10 being strongly agree (or 1-5 in Exercise Unified Response)*. They were centred on the trust and confidence people had in each of the emergency services and additional questions to ask if people felt happy with the information received. These scores were given to the same group of people before and

after the exercise, for all three exercises and so statistical comparisons could be made to see if people's perception increased or decreased following their participation in the exercise. Furthermore, the information given in the interviews and in open ended questions in the survey can give more information on why there are any changes in people's perception.

Due to the surveys containing a mixture of quantitative and qualitative questions (see appendix 6) they were analysed in two ways:

1) Wilcoxon signed rank tests were carried out using SPSS to identify whether perception ratings of emergency services significantly altered pre and post exercise (Field, 2009). This non-parametric test was chosen as the data was Likert data therefore not meeting the assumptions required for parametric testing.

2) Qualitative responses to open-ended questions from surveys in all three of the exercises were analysed using a thematic framework. The number of participants included in this part of the analysis is 271. Interviews data in this chapter was analysed in the same way as the previous two chapters data, meaning the dataset was input into NVivo and a thematic analysis was carried out in order to generate themes.

5.5. Results of quantitative and qualitative analysis

Survey results

For table of results see table 8, 9 and 10.

Results show that after Exercise KMAF Warrior and Exercise Unified Response there was a decrease in the amount of trust and confidence people had in all three of the emergency services (Fire and Rescue, Police and Ambulance). Although the Fire and Rescue Service had the highest level of trust and confidence in both of these exercises, they were also the only service who had a statistically significant decrease in the scores for the trust and confidence (Exercise KMAF Warrior: Pre-event trust mean score=9.09, Post-event trust mean score= 8.59, $Z=-2.18$, $p <.05$; Pre-event mean confidence=9.17, Post-event mean confidence=8.63, $Z=-2.08$, $p<.05$; Exercise Unified Response: Pre-event trust mean score=4.64, Post-event trust mean score= 4.56, $Z=-2.54$, $p <.01$ Pre-event confidence mean=4.62, Post-event confidence mean score=4.53, $Z=-2.68$, $p<.01$).

Reasons given on open ended questions on the surveys alongside the scores indicate that initially scores were based on the altruistic nature of the job, personal experiences and positive media but following the exercise the rationale behind the scores included a lack of communication, minimal instructions and interaction although some answers stated that they were confident, precise and efficient at carrying out procedures.

Similarly, the Ambulance Service's trust and confidence level was high in all three exercises but also decreased slightly following the exercises. The reasoning for the ambulance service's ratings pre-exercise was the same as the Fire and Rescue's however this changed post exercise and became based on the lack of instructions and uncertainty around priorities. However, on the whole people commented on the confidence they portrayed while treating people and stated that their response is invaluable. There were no statistically significant scores for this service.

Overall, the public had the least trust and confidence in the Police Service out of the three, both pre and post incident, but there was also the least drop in ratings post exercise. Reasons given for their rating prior to the exercise included the stories they had heard in the media or from people they know and the experiences they had witnessed. Post exercise, the majority of people provided a qualitative reasoning for their scores; common answers included not knowing what their role was in the exercises and a lack of interaction immediately after the exercise. Overall, people believe they should have been more involved although there were no statistically significant scores for this service.

Furthermore, results indicated that after Exercise KMAF Warrior there was a significant decrease in the extent to which people felt their concerns were understood by the emergency services (Pre-event mean score=8.79, Post-event mean score = 6.87, $Z=-3.18, p <.01$); this was the same for Exercise Joint Endeavour although results were not found to be significant (Pre-event mean score=7.22, Post-event mean score=7.18, $Z=-0.44, p >.05$). People were also significantly less satisfied with the amount of information the emergency services share with the public following Exercise KMAF Warrior (Pre-event mean score=7.65, Post-event mean score=5.96, $Z=-2.94, p <.01$), although this was increased following Exercise Joint Endeavour but was not found to be statistically significant (Pre-event mean score=6.70, Post-event mean score=7.05, $Z=-1.14, p >.05$). There was also a significant increase in the preference to know

emergency service procedures following Exercise KMAF Warrior (Pre-event mean score=7.52, Post-event mean score=8.88 $Z=-3.65$, $p <.01$). Lastly, after the exercise people felt that following Exercise KMAF Warrior they would comply to a greater extent with instructions given by the emergency services that are positive findings, although this was not found to be significant (Pre-event mean score=9.17, Post-event mean score=9.34, $Z=-0.14$, $p >.05$).

Table 8: Exercise KMAF Warrior quantitative table of results (1= strongly disagree, 10= strongly agree)

Statements	Pre-event		Post event		z	sig (2 tailed)
	Mean	SD	Mean	SD		
I trust the Fire and Rescue Service	9.09	1.08	8.59	1.65	-2.18	0.03*
I have confidence in the Fire and Rescue Service	9.17	1.06	8.63	1.64	-2.08	0.04*
I would comply with instructions given by the emergency services	9.17	1.34	9.34	1.58	-0.14	0.89
I trust the Ambulance Service	9.09	1.06	8.83	1.59	-1.06	0.29
I have confidence in the Ambulance service	8.96	1.18	8.67	1.62	-1.17	0.24
I feel the emergency services understand my concerns	8.78	0.98	6.87	2.22	-3.18	<0.01*
I have confidence in the Police	8.35	0.82	8.29	1.44	-0.12	0.91
I trust the Police	8.30	0.91	8.29	1.45	0.00	1.00
I prefer to know the procedures of the emergency services	7.52	1.38	8.88	1.82	-3.65	<0.01*
I am happy with the amount of information the emergency services share with the public	7.65	1.01	5.96	1.20	-2.94	<0.01*

***Result is significant $P < 0.05$**

Table 9: Exercise Joint Endeavour quantitative table of results (1= strongly disagree, 10= strongly agree)

Statements	Pre-event		Post event		z	sig tailed) (2
	Mean	SD	Mean	SD		
I trust the Ambulance Service	8.43	1.82	8.35	2.17	-0.24	0.81
I trust the Fire and Rescue Service	8.35	1.99	8.57	2.04	-0.22	0.83
I have confidence in the Ambulance service	8.35	1.95	8.09	2.50	-0.18	0.85
I have confidence in the Fire & Rescue Service	8.26	2.03	8.46	2.20	-0.50	0.62
I feel the emergency services understand my concerns	7.22	2.06	7.18	2.51	-0.44	0.66
I have confidence in the Police	6.96	2.53	8.16	2.30	-1.82	0.07
I trust the Police	6.78	2.45	8.11	2.25	-1.87	0.06
I am happy with the amount of information the emergency services share with the public	6.70	2.32	7.05	3.09	-1.14	0.25
*Result is significant $P < 0.05$						

Table 10: Exercise Unified Response quantitative table of results (1=strongly disagree, 5= strongly agree)

Statements	Pre-event		Post event		z	sig (2 tailed)
	Mean	SD	Mean	SD		
I trust the Fire and Rescue Service	4.64	0.66	4.56	0.74	-2.54	0.01*
I have confidence in the Fire and Rescue Service	4.62	0.67	4.53	0.73	-2.68	0.01*
I trust the Ambulance Service	4.62	0.68	4.56	0.74	-1.35	1.18
I have confidence in the Ambulance service	4.53	0.75	4.49	0.80	-0.75	0.45
I trust the Police	4.14	0.86	4.12	0.92	0.99	0.32
I have confidence in the Police	4.10	0.88	4.06	0.91	-0.94	0.35
I am happy with the amount of information the emergency services share with the public	3.90	0.94	3.80	0.96	-1.89	0.06
*Result is significant $P < 0.05$						

Please note the use of traditional alpha for the many comparisons above is due to this being new research that is trying to identify trends that will be explored using qualitative research.

Interview Analysis Results

The data extracted from the total data set for this chapter was 13 066 and 5 themes were generated, the thematic analysis carried out created 5 themes, the main themes found, in order of prevalence, were (i) be friendly and reassuring (3327/13066 words, 25% of the extracted data set);, (ii) be informative(3204/13066 words, also 25% of the extracted data);, (iii) give clear instructions(2730/13066 words, 21% of the data set), (iv) improving perceptions (2432/13066 words, 19% of dataset) and (v) current perception (1370/13066 words, 10% of dataset)..

[Key for quotation label: KW= Exercise KMAF Warrior, JE= Exercise Joint Endeavour, UR= Exercise Unified Response, D= Dictaphone , S= Survey, I= Interview (I1= interview 1, I2=interview 2 in that exercise) GI= Group Interview, P= Participant (P1= Participant 1, P2= Participant 2 etc. in group interviews)]

The majority of data used for this chapter come from the answers to the questions in the interview that ask participants to evaluate their experience and to provide suggestions for the future (part B and C of the interview protocol, Appendix 4) in addition to questions on the survey that also ask about people's perception of the emergency services and preferences for the emergency services (labelled 'section b: emergency service perception questions' and 'section d: preference questions', appendix 6).

Table 11: qualitative themes for chapter 5

Theme	Definition	Subtheme	Definition	Quote example
Be friendly and reassuring	When it comes to communication, as there was a perceived lack of it, friendly and reassuring interaction was most often requested.	Friendly communication	People often reported wanting more friendly communication.	<i>[JE, I20] More communication, information. They were good at communication because they were friendly and take care of the people</i>
		Verbal reassurance	Receiving more verbal reassurance was requested by casualties, e.g. responders asking people how they are and or assuring people that they will get to them.	<i>[UR, I3, D2]um I think it um, I don't know whether it would have been able to be told you know "you're safe, we're going to um—we're gunna keep you here for a bit longer, we're gunna take you a few at a time, um don't worry you're going to be fine" you know</i>
		Advantages of friendly, reassuring communication	The recognized benefits to communicating in a friendly and reassuring manner was that people felt less stressed, calmer and it could assist people psychologically.	<i>[KW, GI2, P3] They were really, really good. Cause they kept calm and they kept like... cause obviously if they aren't first aid trained the only thing, they could do was tell... came around checking if everyone was all right. They just didn't bring any extra help because they couldn't. So, I don't think it was their fault, they just need to be trained</i>
		Treat people as individuals	Sharing names with each other was important and could instantly make people feel better as they feel treated as an individual.	<i>[UR, I14, D12]I'd say don't forget the basics, just the simplest my name is, what's your name or erm err you know were doing everything we can to get to you, we want to make sure you're going to be safe so it's going to take some time those kind of things</i>

Be informative	There were several people who	Consistency	Not all the casualties felt informed and some received more information than others.	<i>[JE, I22] I didn't get told much to be honest. They said was you alright and I said yeah and that was it they went to deal with someone else</i>
	commented on the necessity to increase frequency, quality and consistency when responding to people.	The basics	One type of information people wanted was any available basic information.	<i>[JE, I20] Like someone informing us what is going on because people on the train couldn't understand what was going on, we heard people shouting and banging but we didn't know what was going on, they didn't inform us about that.</i>
		Transparency	Sharing the next steps are when it comes to recuing people would have been helpful and would have avoided any misconceptions about the lack of urgency from the emergency services.	<i>[KW, G13,P5]Well... cos if you're a member of the public who didn't understand how it works, even if you could see up the other end that there is someone maybe that looks more injured you might still be wondering why aren't they actually doing anything although like- to a member of the public might be 'oh I've only got a broken arm they can quickly help me before they come back to that patient'.</i>
		Prioritization	Understanding why some people were prioritized over others was also difficult for some people, giving information about why this was could have helped.	<i>[JE, I14] Yeah sometimes the person besides me was bleeding so they could have rescued them before the other casualties</i>
		Personal treatment plan	The last type of information requested by casualties was to be told what is happening to them personally.	<i>[JE11]If you work with the military the medic will constantly just say I'm just tourniqueting you up, just fixing the tourniquet and they tell you what they're doing but actually, telling me</i>

				<i>while they was doing other stuff they just left me, yeah mainly about what they was doing but when they come back they were like right we're gonna do this...</i>
Give instructions	Giving instructions is important to direct casualties to carry out an action; as it is a serious situation it is important that the instructions are clear for casualties to complete the task correctly.	Verbal clear instructions as a necessity	Clear instructions given verbally was essential to casualties, although this was not always carried out well by the emergency services.	<i>[KW, GI2, P2] It was before we got changed. We just got handed this package... I couldn't even open mine (agreement from group) ... cause the plastic was like... It took me 10 minutes of standing there, it felt like 10 minutes, before I actually knew.... Instructions...</i>
		Implications of unclear instructions	There were many implications of unclear instructions, such as not following procedures correctly.	<i>[KW, P3, R1]We got off, we were kind of instructed to put on these suits and get dressed but we weren't really given any direction we didn't know exactly where to go, it was a bit, it was all open we were expected to strip off in front of everyone who was there erm...they didn't really tell us how to put the masks on or anything like that so there was people walking round with no masks on so obviously if there was a dangerous chemical on us then there could of been really dangerous.</i>
		More patience	Sometimes help was asked for and was not given, perhaps as responders did not think it was essential but to people experiencing this for the first time, they may need things repeating.	<i>[KW, GI3, P3] I remember asking, "is it the white or the green one first?" And the guys was like, "it's obviously this one first" and I was like, "Really?" it doesn't say anything on there. (laughter)</i>

Improve perceptions	The previous three themes centre on improving communication, however there were other ways to improve people's perception of the emergency services that were pointed out during casualties' evaluations of the emergency services	Physical checks	One piece of advice given was not to just take their word for any injuries they had and to instead carry out some secondary checks.	<i>[JE, I9] Err initial response, I didn't have my airways checked at all, although I was groaning a little bit. I had a (UNSURE) in my mouth and that was never ever taken out. I also had a head injury but that was only found at the hospital, nobody bothered taking the hat off while we were on the bus and my treatment for the amputation was, they put a tourniquet on which was good</i>
		More live exercises for training	People also felt that more training events like this were required for the emergency services to improve and progress and here it is okay to make mistakes.	<i>[JE, I16] Again, do more things like this and just show people the training you're doing...just be more public about this. No one is ever gonna be happy. People are always gonna say they didn't do enough but there on the frontline to emergencies and they're only human at the end of the day but yeah trial and error. Make mistakes in things like this instead.</i>
		Involving members of the public in exercises	Involving members of the public was also found to be something that should be done more as the public are willing and it was a learning experience for them.	<i>[KW, S] I learned the difficulties faced in such an exercise as well as the importance of good communication between different emergency services.</i>
Current perception	There was a lot of praise given and the	Gained a positive perception	For some people they have a newfound appreciation of the emergency services and have gained a positive perception.	<i>[JE, S] A lot more respect for them now.</i>

	casualties with the overall perception of the emergency services being positive.	Maintained a positive perception	For some people, these exercises just maintained people's current positive feelings towards the emergency services.	<i>[UR, I3, D2]no, I've always had a really high regard for all the services and um, that hasn't changed at all it's only been kind of cemented really, they were all very good</i>
		Benefit of the doubt	Even if the emergency services did not meet people's expectations, they thought they would do better in a real incident and would give them the benefit of the doubt.	<i>[UR, I16, D16]no, they, they'd be quicker, and you know they'd be quicker in a real situation. Like some of the things they were doing, like you know that they're just doing it because it's pretend</i>

1.Be friendly and reassuring- Although there was a lot of constructive criticism of the emergency services when it comes to communication, as there was a perceived lack of it, friendly and reassuring communication was most often requested. The most prevalent theme was to be friendly and reassuring.

Friendly communication

People often reported wanting more communication that is friendly as being spoken to nicely in stressful environment/situation was deemed to be helpful.

[JE, S] Better, friendlier communication

[KW, G11, P1] ...with more instructions and be spoken to nicely (group agreement)

[KW, G13 P2] Cause when you are in stress and then have someone be not so nice to you is not good, you know

[KW, G2, P5] Get more involved and talk to people so they knew what to do

Verbal reassurance

Several people also requested verbal reassurance while awaiting rescue or treatment but also during their rescue. People said a lot of reassurance was vital in incidents like this, people felt it would be more reassuring to ask people how they were feeling and not just giving them orders. People also did not mind being told that they would be waiting a little while longer; if they were reassured that somebody will get to them when they can.

[UR, I18, D1]I dunno really [approx. six second pause] ...I think it's them talking to you really, the reassurance really, the reassurance with- the boys... [Interviewer: How vital would you say that is...cos I've seen that...] Paramount... cos what I didn't like was being tagged, funnily enough

[JE, I5] when you're a casualty lay there, you want reassurances all the time

[JE, I12] Always just reassurance, constantly.

[JE, I10]No, I think erm at one point we were shouting to get off the train and there was a paramedic who was at the front and I think she could of give us a bit

more reassurance because she was telling everyone to calm down but it's a bit hard to do in this situation

[JE, I23] Like when I'm being treated, they didn't really reassure people, they just said oh you're alright not are you okay.

[UR, I3, D1] but that's not the reality of this situation, so I think perhaps some kind of realistic it's "gunna you know, it's gunna be a while, but you're going to be okay... Maybe just try to reassure you a bit more, you know you're gonna be a while we're gonna do this..."

Advantages of friendly, reassuring communication

Some people interviewed requested to be spoken to in a friendly way, if emergency services were to do this it is a benefit as it is giving the public what they want. It was also deemed to have a calming effect when the emergency services spoke to people, this would reduce the chance of people panicking they thought. In addition to this it gave a better perception of the emergency service personnel who were more talkative with people. Further advantages to providing casualties with friendly and reassuring interactions included medical benefits as some believed this type of friendly interaction could keep people conscious or give them something to hold on to.

[UR, I7, D12] they do do—like I do really respect them anyway but they have, they have changed a few things like they are so caring they are—Firemen are known to be like men that don't really care like just put out fires and whatever, but they're actually really nice people and they talk to you, calm you down even though it's fake, calm you down and talk to you like really well. Yeah, brilliant

[UR, I1, D7] Erm... When erm... in majority of the communications that I had with the services it was mainly just clear instructions. There was not much in the way of conversation that would ever build up. Which I think would help, cos it- it would probably help calm people in a real-life scenario as well. So definitely with easing and calming communication... conversations with others would be good.

[JE, I1] You know just trying to keep me conscious? They got my name but needed a lot more positive conversation, you know shouting cos that keeps you awake really

[JE, I3] ...if someone is in kind of critical position I would say try to find out about family and give them something to psychologically hang on to so erm...think of your daughter or...

[UR, I10, D2] Yeah so verbal reassurance, even just saying that and calm people down and stop people panicking and like

Treat people as individuals

Treating people as individuals was important, for example learning and using people's names. This worked both ways as the casualties liked giving their name but also commented on how good it was for the emergency responders to tell them their name. This seemed to be one of the most basic ways to make people feel reassured and comfortable whilst also treating people as individuals. It seemed strange to the casualties not to know names and made them feel more human if they were sharing names.

[JE, I5] I err certainly one of the HART teams that were in were particularly friendly, they introduced themselves, they explained everything. You had other teams that burst in like a bunch of wild rhinos

[UR, I2, D3]um it was um, it would have been nicer if they had been a bit more reassuring, and the basics went a bit like, introducing themselves saying like "I'm so and so, you're gunna be fine" that kinda thing

[UR, I11, D19]so, I don't know if she was meant to play up to, be a bit more level, so maybe just a few more names would have been nice, because I imagine your terrified day three [laugh] and now you've got strangers coming in [Interviewer: yeah] throwing torches in your face and you don't even know their name, it's got to be pretty scary

[UR, I8, D8]It was- it was weird cos I was thinking... if I'd been the first person getting there I think I would have at least said... like 'what's your name' and 'my names blah blah blah' and 'how are you' type of thing. There wasn't any of that, and erm... yeah then he left, and then the next person came along. So that was a bit strange

[UR, I8, D8]No, the next person did similar, but he spoke to us more about actually- explained things and said what he was gonna do [Interviewer: So, what was the difference- what- what- how did the first person make you feel, and how did the second person make you feel?] The first person made me feel like we were just erm... just casualties, basically. The second person made me feel like you were human beings

[UR, I6, D1]I think it would have for me personally the job I work in is reassurance you know don't worry, you're gonna be okay, you're gonna be here for a little while' and just keep reassuring people erm it would be nice if they introduced themselves because we didn't know who they were, I know they were paramedics but you know look say my name's John your names Joanna you know that sort of thing, we're here to help you that sort of thing da da da da da or explain why some people are taking as a priority because everybody thinks they are a priority don't they coz one girl one girl was really screaming her head off, but she wasn't a priority (laughs)... yea so

2.Be informative- Keeping people informed was the second most prevalent theme. There were a few people who commented on the necessity to increase frequency, quality and consistency when responding to people in incidents including mass casualties.

Consistency

Although for some, it seemed that there was inconsistency in the amount information being shared with casualties, especially as some people received more than others. This could create confusion and so casualties recommended that this issue be addressed using a loud hailer or public announcement system, so that everyone has access to the same information.

[JE, I14] Yeah just informing the casualties

[KW, I4] Well I always say, "you know information, give that information".

[JE, I22] I didn't get told much to be honest. They said was you alright and I said yeah and that was it they went to deal with someone else

[KW, GI4, P4] I've said for the PA to be used.

[KW, I4] ...But definitely more blankets and everything else and the PA system to be used more, and for people to be called to attention.

[KW, GI4, P2] Cause people are all trying to help and you can hear the PA but you wouldn't pay attention, but if somebody calls your attention to it and says, "Attention", which he did on the ground, didn't he. "Attention, Attention" we all went to listen to him. But some people are in danger, announcing something, but you are carrying on because you've not been brought to (attention), does that make sense? Your attention has not been brought

The basics

There were many different types of information that people wanted. The first was basic information around what was happening. For example, those taking part in Exercise Joint Endeavour said they would have found it useful to be told that they were in a train derailment whilst some people in KMAF Warrior said they did not know what would happen during a decontamination until they were in the shower. People were not requesting a lot of detail just what the basic information that was available:

[KW, S] Extremely poorly communicated instructions. Even when questions were asked little information was given. Given no idea of what to do with the suits once they were handed to us. And not told what to expect in the tent.

[KW, S] We didn't get told anything about decontamination until you are in the shower

[UR, I11, D32] And erm, I just knowing, I just, I think it would have been nice to know what had happened. So, we was [sic] in a tunnel but we didn't know that we was actually in a tunnel we just...sitting around. [I: yeah, okay.] So, it would have been nice knowing like, "Oh, you guys would have been on a train and it's just suddenly crashed."

[UR, I1, D5] [Interviewer: What information would you have liked them to have given you?] Well, what had happened. If I was on that train, I wouldn't have known what had happened. You wouldn't know...is it a bomb, what's happened. You know. No one told us, well what happened, ...that a building had, fell on the train. If it was a bomb, I might have been a bit more worried, you know. And if

there was a fire, I might have been a bit worried about that too, you know. There was no information about what had happened. And like I said, no indication about where people were and how to get to us and no one asking, 'does anyone have any desperate needs for help'. And I suppose by the time they got to us we would have, we would have all stunk, because we would have been able to go to the toilet or anything...

Transparency

Sharing what next steps are when it comes to rescuing people would have been helpful, even basic information such as explaining why people were waiting on the ferry during KMAF Warrior (in this case it was waiting for decontamination to be set up). This avoids people feeling in the dark or uncertain and avoids any misconceptions about the emergency services doing nothing to rescue people.

[KW, G15, P6] Communicate with people and tell them what is going on because it was not enjoyable being left in the dark

[KW, S] We seemed to be waiting a very long time and didn't really know what had happened, why we were waiting and what for.

[KW, S] We then got towed to another pier where we were left waiting a very long time before getting off the boat which was quite frustrating as nobody would tell us what we were actually waiting for

[KW, S] Just sitting and rocking for ages. And we were like... what are we actually waiting for

[KW, I6] Quite annoyed because it felt unorganised and until the last point it was not treated as an emergency and things were not done with urgency

[JE, I16] You see it on the movies to be honest and it's a lot quicker but yeah, they seem to be working out what they were going to do and what they were doing next. There was a lot of people standing around and I was wondering what they were all doing to be honest

Prioritisation

Understanding why some people were prioritised over others was also difficult for some people too and so giving them information about where they were in order of a medical priority or explaining why somebody was being seen over them could have helped. An overall lack of information about what the emergency services next steps were also left people feeling like they were never going to be rescued and so just briefly telling people they have been seen and will be rescued in a short while may have helped them a lot as a lot of people felt lonely. Acknowledging people are there, even if they are not a priority and if possible, giving them a time scale would have put them at ease and could have avoided any feelings of neglect:

[KW, G12, P3] Yea cause we were telling them, like he's going to die, and they were like "she's crying"

[KW, G12, P6] Broken bones didn't seem like the priority

[JE, I23] just be treated a bit better and go round and...(inaudible) I was left a bit too long, I don't expect to be treated first but someone to say someone will be with you in a minute

[JE, I7] They were talking I seen them but the first one who saw me was gone and didn't come until 45 minutes when somebody else came

[UR, I28, D]and nobody really acknowledged us. So, it would have been nice for just an acknowledgement and just say "we're just working on stabilising it..."

erm as I say just identification and make people aware that there will be someone to help but its gonna b in x amount of time and if it's gonna be a bit longer have someone come back and say it but feedback

[JE, I11] I think when they go around say we'll get to you as soon as we can, but I think if there was more of them. Because it felt like they were paying attention to everyone else from our little group. Maybe if there were more of them. I suppose I did feel a little bit of neglect every now and again

Personal treatment plan

The last type of information requested by casualties was to be told what is happening to them personally. For example, if they are being rescued or treated, what it is the

emergency services are doing to them. It was also often said that the emergency services should still talk to people even when unconscious as this can help in a lot of ways medically, they believed.

[JE, 111] Yeah just anyone. We're doing this, we're doing this, we're gonna move you in a minute, were gonna be back in a minute just keep conscious

[JE, 119] By talking to you really. As they treat you tell them. Because they talk to you in a matter of fact way it shows they know what they're doing, it reassures you. Just because you're unconscious you can still think this guy knows what he's doing, and you can feel better about it.

[JE, 19] Even if there unconscious, the last thing that goes is your hearing. People can be in comas they can hear people....Although I was unconscious, they kept saying, "You're gonna be okay...You're alright. Stay with us, stay with us! Help's coming." So, they were saying it even though they knew I was unconscious, which was really, really reassuring. [Interviewer: Yeah.] Because even when you are unconscious and you're not able to respond sometimes you still can hear those words and it does help...

3. Give clear instructions- The emergency services giving instructions is a form of communication, but it requires casualties to carry out an action that they are requesting; as it is a serious situation it is important that the instructions are clear in order for casualties to complete the task correctly.

Clear verbal instruction as a necessity

Although emergency responders giving clear verbal instructions to casualties are necessary, this was not often always the case. The main example of this comes from Exercise KMAF Warrior where the emergency services were giving instructions to the casualties so that they could undergo a mass decontamination. The method of giving the instructions was deemed poor because people wanted to be told verbally and not just given a pack with pictures in and not even written instructions.

[KW, S] I felt that while some aspects of the event (decontamination) were handled well, others (e.g. Lack of clear instructions) were not. I still feel this way.

[JE, S] I also feel that instructions need to be communicated more effectively.

[KW, G11, P2] Yea, I would have thought they would have said... Give everyone packets and then we will tell you what to do further. Just hang on to it until everyone has got it. Then kept everyone quiet and said, "you've been given these because... this is what I need you to do". But it was all just...

[KW, G12, P3] Not well, they did not tell us what to do with the decontamination packs we were just expected to know to start following the pictures.

Implications of unclear instructions

There were many implications of unclear instructions, especially during KMAF Warrior. For example, it was worrying for some people as the lack of instructions could have meant people came to actual harm, one person reported a latex allergy and the fact that the packs contained latex was not communicated. The lack of clear instructions could have had other serious implications too if it was a real incident as people did not put on the decontamination suits correctly. Had this been a real incident there would be real harm caused and would mean the decontamination is not carried out properly. People also ended up copying each other, which in cases where there is a generic lack of instructions it may potentially cause more harm as it means people who are unsure are following others who are unsure and they all may be doing something wrong and more dangerous. For example, in Exercise KMAF Warrior people were copying one another put on the decontamination suits but if one person puts it on wrong and others copy (as with this exercise) it means people are not following the procedure correctly and could cause the contaminant in a real incident to not be eradicated.

[KW, G14, P2] We kind of didn't get explained anything. Kind of chucked stuff at us and where like, "go get changed". And the gloves weren't latex free, and they didn't state that they weren't latex free either. And I was... So, had I put those gloves on, I would have died. But luckily... Had I had a head injury or something and been confused and put those gloves on I would have died. Where I was just lucky to be acting and I know to be careful. So, I think they need a bit more explaining and they need...

[KW, GI4, P3] when we came out, they just passed us things and didn't (group agreement) ... They were just, "read the instructions", well what if I had a sight impairment? You know, things like that. They don't explain to you anything.

[KW, GI3, P5] There was this underwear and some people were putting it on their heads (laughter)

[KW, GI3, P4] You know there is so many people wearing underwear as hats (group laughter)

[KW, GI3, P3] I was the person who realised that this was an underwear... um remove it

People also reported purposely not reading or following instructions. This non-compliance seems a result of poor instructions and a lack of help given.

[KW, GI1, P1] Person 1: Well I didn't wipe my face or blow my nose. [Agreement from Person 2: Yea, no I didn't.]

[KW, GI2, P3] People didn't have their masks on. And things like that...

[KW, GI3, P4] You wouldn't, nobody would be reading those instructions. People didn't know to read them then and we were like not really injured or panicked. So in like an actual emergency event there's should someone to be there communicating

More patience

Furthermore, more patience is required from the emergency services giving instructions as people seemed to ask for more help, but they were not given the help they asked for. It's important to note that this was a unique experience for most people, although the emergency services are well trained in procedures such as mass decontaminations. Some suggestions to overcome these problems included one person being allocated from the emergency service team to go through the instructions or for staff already present to provide more verbal instructions.

[KW, GI3, P1]The lady who gave us the Hazmat suits though she got really annoyed at my friend because she couldn't... they got their bags mixed up so she

couldn't know the bags had numbers on and you had to have certain bag matching the tag

[KW, GI3, P1] My friend and another girl got their bags mixed up and she was like... she came over and they asked her about the numbers and stuff and she was like, "oh for god's sake", and like started shouting at them being really patronizing like, "You put this tag on your wrist and then you put the (noise) like that" (imitating woman's voice)

[KW, GI3, P6] Just think it would have been beneficial to like allocate one person at least to explain us in like a step by step matter what to do in the tent how to put our clothes into the bag what's going to happen next...

[KW, GI3, P1] The lady with the green hazmat suit on, as she was handing out the suits. If she had been a bit more instructive. Instead she went, "put this one" and that was it. That is literally all she said to us. So, there is that. And then we were waiting for about 20 minutes before we went through to the showers

4.Improve perception -The previous three themes centre on improving communication, however there were other ways to improve people's perception of the emergency services that were pointed out during casualties' open and honest evaluations of the emergency services.

Physical checks

One piece of advice given was not to just take their word for any injuries they had and to instead carry out some secondary checks:

[JE, I3] I'd say don't take the patients word for it [Interviewer: do the full check?] Better safe than sorry Yes because in the army that would have been considered a big no no that they failed to do that, they wouldn't do that and also nobody took my beany cap off until I got to hospital so there was no head inspection. Also given I was in rubble I would think I could of well had problems with breathing from dust inhalation nobody seem to take that into account

[UR, I, D33, R9] Erm...reassurance was good, erm. Handling me was good, given I was able to be walking wounded, where I thought they fell down was that they took my word for it or from the case card about my injuries, assuming I had no

more, so they didn't. No one at the various stages of the exercise did any body searches but they did say do you have any pain anywhere else

[JE, 113] Yeah err well they didn't when they came in and they was checking me they checked if I was breathing and conscious and everything and then they went on to the next person. They only seen my head injury but didn't check to see if I had any other injuries, they'd only seen my head. They could have checked to see I have any broken bones or anything; I could have been bleeding internally which they obviously wouldn't see.

More live exercises for training

People also felt that more training events like this were required in order for the emergency services to improve and progress. People preferred them to make mistakes in exercises instead of in real exercises, the benefits of the emergency responders' learning was highlighted.

[KW, G11, P4] erm...I can tell that they needed the training, in the nicest way possible

[JE, 116] Yeah just organise themselves to be honest. I think today is not about people made a lot of mistakes or people did relay well I think it's all trial and error and I'd rather they make mistakes in things like this than in a real situation so I'm all for it to be honest and if anything, they should do more of these things.

[JE, 15] Err definitely more training. You know if you could have some more of these, I know it's all down to cost but err you've got to benefit and save lives. Prepare people, desensitise them and you know its real people

[JE, 118] Oh yeah, I got the sense they were learning things for the first time and I suppose in a way that wouldn't increase your confidence, I know this is a training event but in a real event you would need them to have more confidence. Even the people who don't know what they're doing kept shtum and just got on with it and being told what to do. You need to feel that they know what to do and now I'm sure if it did happen, they would know what to do.

[KW, S] It was highly beneficial for everyone involved, it was very eye opening

[UR, I4, D12] you know, on a regular as in sort of yearly or every two years, but I think it's something that is clearly beneficial

[JE, I10] Patients perception definitely because you never think of it when your there, you just do the best you can but like even just being lifted and having no control whatsoever and you have to rely on that person it's really strange and as well when you're in hospital all the stuff they use. You don't think of it from their perspective but yeah really...

[JE, I14] I have learnt how to act in certain scenarios and how to stay calm and not to cause a fuss if you're not that injured, and I learnt how to be more supportive if someone has got injuries.

[JE, I13] Because it was quite good because you got to do the make-up stuff and you got to know how to feel in certain scenarios so it shows you how other people feel and how to cope if you were put in that situation

[JE, I18] priorities and things like that and that people, it's hard to understand how they would react. In a real situation would they help you? You know the dynamic of people really. When we got into it, I could feel people really taking it seriously sort of almost scared at times

[KW, S] I learned the difficulties faced in such an exercise as well as the importance of good communication between different emergency services.

[JE, S] yeah, it gives me more of an understanding on what they do

[JE, S] The fact that we've helped some medics do their job better, that's always the positive.

*[KW, G11, P2] [Interviewer: would you take part in something like this again?]
Casualty: it was pretty cool though to see how they react*

Casualties taking part in real immersive exercises such as this can also benefit the emergency services as it enables them to develop an understanding of an emergency service response and so people can develop a realistic expectation. It also allowed people to realise how hard they work and so gave people more an appreciation of life and what the emergency services do.

[KW, S] The overall exercise was a great experience helping me to learn about decontamination procedure and the emergency services. It also helps you understand what a real event like this would be like.

[JE, I23] I think it was good to understand and appreciate how much pressure they're under and seeing them do it really calmly. I think their prioritising could have been a bit better but (inaudible)

[JE, I14] Yeah and like I didn't think the services actually like... you have to wait for the services for the rescue and the treatment

[UR, I2, D8] I think it's made me more realistic of the emergency services, because like general public I think stereotypically just assume that the crash is going to happen and they're gonna be in there, getting you out within five minutes but actually it's made me realise that that's not the case, you need to get there, you need to find a way in, once you're in you need to make sure it's all safe and everything, so it's made me realise that it's like unrealistic to think that everything's over within an hour and that people are left in there for absolute hours in those conditions.

5.Current perception- Interviews with casualties were largely evaluating the response of the emergency services and so as detailed above, constructive criticism was given for the services to improve. However, there was a lot of praise given and the casualties did point out many strong points of the emergency service response during the three exercises.

Gained a positive perception

For some people they have a new found appreciation of the emergency services and have gained a positive perception. For others they may not have had the best perception prior to taking part and now have a positive perception.

[JE, I12] Yeah sure and my students have been involved so I think it's been a great experience for them to be involved in and great for me as well for a bit of experience and to see how it works so I've sort of been blown away by the magnitude of it all

[JE, I11] From where I was standing it looked like a good operation knowing who was doing what err I can't fault anything really

[KW, S] It was exciting and at many points it was realistic and sometimes even emotion got evoked in me

[JE, I1] not many people spot you need a tourniquet, not many people spot it and he went oh...well I've been doing this for 8 years and I've had...he was only the 3rd person so he was quite switched on

[UR, I5, D12] umm, I think the actual like medical care from the first responders was actually really good. Umm... and the way they dealt with all the casualties, I think that will stick mainly cause, just the way that they knew exactly what they were doing, knew exactly how they were treating and prioritising, cause obviously they give like one, two three priority

[KW, S] Everything went smoothly, the members of the emergency services were confident, they were able to do everything with control

[JE, S] A lot more respect for them now.

[JE, I13] Err most memorable would be what a huge job it was for the emergency services and how hard it must have been to put together and all the different agencies working together and obviously the effort and preparation that's gone into it

Maintaining a positive perception

Although for some people, these exercises just maintained people's current positive feelings towards the emergency services

[JE, I12] Yeah, I've had my own experience to prove it now so...I'm always in admiration for what they do and it's kind of reinforced it

[UR, I2, D4] cause I mean it is hard and I do think that you know UK's second to none when it comes to things like this

[[JE, I17] That I love the emergency services, they do a great job. It was really heart-warming at times and really lovely to see. They do a great job

Benefit of the doubt

Lastly, even if the emergency services did not meet people's expectations, they thought they would do better in a real incident and would give them the benefit of the doubt. This is an example of how people want the emergency services to do well.

[JE, I1] I think in real life they'd be a lot more switched on and a speedy wouldn't they

[KW, G11 P5] But that's the reason why I am saying, maybe if there was a real situation they would react better.

[UR, I16, D16]no, they, they'd be quicker, and you know they'd be quicker in a real situation. Like some of the things they were doing, like you know that they're just doing it because it's pretend

5.6 Discussion

This research aimed to explore casualty perceptions of the emergency response and the communication preferences of casualties, as these recommendations may improve the overall emergency response. Overall the quantitative findings of this study have found that a lack of communication in simulated live exercises can cause some significant decreases in the perception of the emergency services, namely the amount of trust and confidence people have in certain emergency services, as expected. Furthermore, even though the level of trust and confidence people have in the emergency services still remains high, the perceptions overall were lower following live exercises. The qualitative findings of this study, which come from interviews with casualty role-players, have explained these findings by stating that more reassuring and friendly communication is required in addition to clearer instructions and more basic information. This study has found that the public have a lot of trust, confidence and respect for the emergency services. However, they recommend that communication is increased in frequency, quality and consistently during exercises.

The types of communication requested from casualties included basic communication in order to provide a better understanding of how they got into that situation. For example, stating that there has been a train collision, explaining what the emergency services are doing to respond to the situation and telling people what procedures they

will be or are enduring physically for rescue or medically for treatment. This is important for casualties, especially if they are cognitively impaired, as previous research has found can be a possibility (Leach, 1994; Leach, 2004). The type of approach desired by casualties is a friendly and reassuring approach as this was found to calm people and put them at ease that they have been seen and they will be rescued. Clear instructions are also imperative for casualties to follow procedures and to comply with the emergency services correctly. Failing to communicate effectively can cause significant changes in the trust and confidence people have in the emergency services as the pre and post survey comparisons seemed to show.

Overall, communication from responders to the participants was reported to be poor, with many participants feeling uninformed and uncertain. It is understood that responders do not have the answer to everything; however, there were many requests for basic information that would have been known to responders although they may not understand that this would be helpful information to pass onto people. For example, a lot of feedback about communication came from people during Exercise KMAF Warrior, here people requested more information on the process and procedure of preparing for and undergoing decontamination and people did not understand the necessity of it, This study met predictions and it also supports other studies into communication strategies by Dr Holly Carter and colleagues (Carter et al, 2014a; 2015a; 2015b) as both health focused and practical information was requested frequently in addition to basic information, This would have increased the perception of the responders, improved the level of compliance and minimised any confusion felt by people during the exercise.

As it has been previously found that a lack of practical information from responders could increase anxiety and decrease compliance in a real-life incident (Carter et al., 2012), this could have explained why people reported feeling uncertain and sometimes anxious during exercise as the lack of practical information was evident. This study had many participants requesting interactions with the responders about how they were being treated or rescued that could be considered practical information. Although this study did not observe non-compliance it still highlights how crucial it is to provide casualties with enough information to understand what is going on and what is happening to them. However, during interviews some people openly admitting to not following procedures during decontamination which could constitute evidence of non-

compliance. Furthermore, not ensuring casualties are informed could be perceived as the responders having a 'lack of respect' for them (Carter et al., 2012); therefore, strongly supporting the action to inform casualties.

As well as saving time, if the proposed improvements to casualty communications are made it could potentially save lives by improving the behaviours of casualties. Casualty behaviour has been previously reported to be disorganised, inappropriate or slow inhibiting people from cognitively processing their own actions (Leach et al., 2008; Leach, 2012); although this research has found casualties to be proactive and willing to help themselves and others. Nevertheless, giving clearer instructions would direct people into more appropriate behaviours or would encourage them to be more proactive. Direct and clearer instructions also prevent people from affiliation, which is about moving towards the familiar, for example going towards a safer exit and not just one that they are aware of (Muir et al., 1996; Mawson, 2005).

Additionally, enabling the public to help other casualties, one of the identified themes, promotes the commonly documented adaptive behaviour of altruism (Cocking, 2013). This is extremely desirable in an emergency as it has the potential to save many more lives in addition to helping the emergency services. Furthermore, improving communications to encourage this type of behaviour also gives people a purpose in the emergency, possibly preventing them from cognitive impairments such as cognitive paralysis or freezing (Leach, 1994; Leach, 2011; Leach, 2012). If people are in this state and are not directed, they may continue to not do anything, therefore risking further danger. This is also known as 'behavioural inaction' that previous research has found to have a very low survival rate (Muir et al., 1996; Leach, 2005). Therefore, casualties will benefit from having a voice of rationality informing them of what is going on and giving them instructions to follow; again, minimising the risk to themselves and other people.

It may also be beneficial to share more information with the public, as it was found to have decreased in the pre and post surveys. Additionally, research has found that the more informed people are often found to be advocates of the service they are informed about (Corrado et al., 2006). Conversely, not improving or providing communication may promote other maladaptive behaviours that cause people to not want to help themselves or others. Being transparent with information can therefore prevent such

unwanted behaviours as well as meeting the preferences of casualties and having a positive impact on the communicating agency (Holmes et al., 2009)

As previously research has found, the goals of communicating with casualties from a responder's perspective are to provide instructions, gain compliance, increase trust, and decrease anxiety and panic (Carter et al., 2012; Carter et al., 2013; Wray et al., 2008; Wray et al., 2006). The findings of this study provide ways in which to meet these goals, as casualties will not be anxious or panicked if their preferences are met; they will also comply as they have received clear instructions, and this will lead into trust in the agencies involved. As previous research has stated communication is essential for medical reasons as it can aid in keeping people conscious and alert (Sisson, 1990). It should be recognised that at present understanding a casualty's likely behaviour and their communication preferences in an emergency are not a significant part of the emergency service training; something that needs to be reconsidered.

There are a few limitations worth noting about this study. Firstly, although the sample size was sufficient to carry out a quantitative analysis, this number of people is not representative of the population and so more research is needed in order to compare and gather the many variations in people's preferences to carry out more quantitative analyses for comparison and in different scenarios. Additionally, these preferences may be inappropriate as the responsibilities and priorities of the emergency services may counter these preferences. This suggests that more work is needed in order to come to a mutual agreement between the two parties. Nevertheless, this is a starting point for addressing this gap in this field, as it is rare that the public are allowed the chance to provide their preferences for communication (Kellens, Tepstra & DeMaeyer, 2013).

One final limitation that is important to reiterate that this was only a simulated emergency and ratings came from people observing emergency responders training and so it is important to point out that findings may be different in a real emergency for a number of reasons. The emergency services were only training and so may act different in a real emergency due to the level of seriousness, stress and risk of harm and people may also rate them differently as they could have potentially saved their lives or witnessed them saving others' lives. Furthermore, people may also request different communication during a real emergency as they were not in real pain or

distress during these exercises they may not think about what they will need, for example nobody was aggressively asking for pain medication although people may need it as soon as possible if they have been in a serious accident. People may not be as patient in a real accident either if they are feeling really frightened. Nevertheless, this was a good starting point to see what type of communication people feel is important however it would need to be repeated in a real incident to compare the preferences of real casualties and to see if they are the same. This could be done by interviewing casualties, and perhaps the responders involved, after a major incident. Of course this would require the right opportunity and sensitivity to the people involved.

This research has many practical implications for emergency service responders during an emergency. Responders' have a duty to communicate with the public and should trust that a well-informed public is better able to respond to an emergency and to minimise the damage (Cabinet Office, 2012). However, as previous research has found, this is not always understood as communications are not always effective and preferences of the recipients have not actively been incorporated into the existing training.

Based on preferences provided by casualties, the following recommendations have been identified:

1. Provide casualties with more friendly and reassuring communication as it helps people to feel calmer, less stressed, and it could assist people psychologically. For example, ask people their name and tell the you will get to them.
2. Communicate more frequently with casualties, providing them with any basic information that is available about the incident or about any next steps to the rescue and/or treatment process. This will stop any confusion and can help people understand the priorities and possible why it sees there is no urgency.
3. Responders should interact with casualties whilst they are being rescued or treated, giving them a commentary of what they are doing and why, this will help reassure people and comply with procedures.
4. Provide clear and direct verbal instructions to casualties so that they can follow any procedures or processes, such as mass decontamination, correctly.

5. Involve more members of the public in live exercises and training events as it can help casualties gain a realistic expectation of the emergency services but can also allow people to improve or maintain a positive perception of the emergency services.

5.7 Conclusion

This research has addressed issues within in the literature by utilising data from large-scale live simulated exercises, examining the public's preferences for communication and the current perception of the interactions. This research has gone against the notion that people panic in a major incident when and the findings presented in this study also provide ways in which emergency responders can improve their communications and interactions with casualties during an emergency. It also found that emergency service responders interacting with casualties should give them as much detail as frequently as they can. The types of things people want to hear when being rescued and treated is not often discussed in previous research but this research found that responders should provide a commentary of what they are doing, they should reassure and acknowledge casualties as well as provide them instructions on how to help other people, wherever possible. This may have beneficial short-term effects such as an increase of compliance, more help on the scene, more informed casualties and therefore a higher survival rate. In the long-term people may then leave the incident (whether real-life or training event) with more trust and confidence in the emergency services. Although this study took a naturalistic approach to research and included members of the public, more research is needed in this area using real casualties in real emergencies if possible.

Prelude to Chapter 6: This thesis so far has focused on understanding casualty behaviour during an emergency and consequently outlines what the emergency services can do in order to improve their response and treatment of casualties. In order to attain balance and fairness, the following and final data chapter will address how people can aid themselves by preparing for emergencies in case they should one day become a casualty. There are different types of emergency e.g. terrorist attacks, floods, hurricanes and some are more predictable than others (e.g. flood warnings are sometimes issued but there is no warning for terrorist attacks) and so this chapter covers all emergencies and any preparations people make, whether that be understanding how to administer first aid or household preparedness as all types of preparing can assist the emergency services in case of an emergency. Although household preparedness may not necessarily help people in a terrorist attack for example, it is still an indication that the person is willing to help themselves in case of emergency and may indicate a larger knowledge of life saving techniques. However, what prevents people from becoming prepared, even when given the information, is unknown. This chapter therefore continues the theme of understanding human behaviour in relation to a major incident environment but this time it is looking at prospective casualties and what prevents them from taking preparedness action. This chapter has come about by working with a branch of the emergency services and the associating agencies, the local resilience forum and is not informed by live exercises as with previous exercises.

Chapter 6: Enabling community resilience: Social & cognitive factors affecting the decision to take preparedness action

6.1 Introduction: Preparing for the worst

The increased scope and severity of human and man-made disasters over the years have highlighted the importance of revising emergency management tools and methods (Kapucu & Garayev, 2011). There is a focus on communities in urban areas as they are especially vulnerable to extreme events due to the density of human population, global warming, and the rise of complexity and interdependence between critical physical infrastructure systems (Aldunate, Pena-Mora & Robinson, 2005; Godschalk, 2003). This constant exposure to disasters makes these communities a fundamental part of the emergency management system (Kis et al., 2013). Preparing

communities by providing them with adequate information about potential risks is therefore a necessary component of an effective emergency response (Kis et al., 2013; Wray et al., 2008).

This type of communication, often referred to as risk communication, is commonly associated with producing public messages to warn and inform them about prospective health and environmental hazards (Reynolds and Seeger, 2005; Seeger, 2006). One focus of risk communication is loosely described as seeking to create a rational understanding of risk with members of the public (Reynolds and Seeger, 2005) and is obligatory under the Civil Contingencies Act 2004 (Samuel, 2007). It is said that responding agencies should use this act as a framework to promote and foster resilient communities through all stages of a disaster cycle by providing suitable and timely information to prepare people (Samuel, 2007). This type of information can help people to anticipate disasters, take appropriate protective measures, prevent further injury and reduce unnecessary care-seeking as well as aid in facilitating efforts to recover from the effects of imminent or current hazards and risks (Wray et al., 2008; Levac, Toal-Sullivan & O'Sullivan, 2012). Given that disasters often cannot be predicted, learning to cope with uncertainty and trying to mitigate risks where possible in advance is essential (Godschalk, 2003).

When the public are educated about risk, it allows them to make informed (Kapucu, 2008) and efficient decisions during a critical period (Seeger, 2006). A more comprehensive understanding of phenomena such as natural hazards helps people to develop strategies for the necessary prevention, response or restoration, therefore maximizing public safety (Kis et al., 2013). However, Paton (2003) states that simply transferring knowledge is not enough to support people's decision to prepare. For example, in contrast to the United Kingdom the United States (US) currently employs an 'all-hazards' approach that provides a basic core framework of measures to simultaneously address multiple sources of risk (Gin, Stein, Heslin & Dobalian, 2014). Programmes such as the Community Emergency Response Team (CERT, ready.gov, 2013) and citizen corps part of the Federal Emergency Management Agency (FEMA, fema.gov, 2018) tick all the boxes in terms of providing information but have limited success (Gin et al., 2014). National surveys reveal that less than half of the US population is taking preparedness actions such as duplicating important personal documents, stockpiling supplies or developing an emergency plan (Wood, Kano,

Bourque & Mileti, 2011; Gin et al., 2004). It is argued that cognitive and social processes affect people's decision making in this context and underpin the shift from intention to action implementation (Paton, 2003; Wood et al., 2012). However, a more thorough understanding of these social and psychological factors it is needed in order to develop more effective strategies for promoting public preparedness (Gin et al., 2014).

6.2 Cognitive and social processes challenging preparedness action

Although high consequence, disasters are usually low probability affairs, which makes it difficult to convince the public to take steps to prepare when they have existing everyday life pressures (Kapucu, 2008). The task of disseminating information is also problematic due to competing for people's attention through the abundance of information currently available in the many formats that now exist (Wood et al., 2012). This difficulty in getting the public to participate in disaster preparedness is one of the social realities that disaster planning must face, and it is one of the processes that pervade successful responses (Kapucu, 2008). This general attitude to disaster preparedness is characterized by public complacency (Kapucu, 2008).

Apathetic and complacent behaviour is a major problem for government officials trying to ensure effective public responses to repeated threats of disaster (Kapucu, 2008). Although it is beneficial that these warnings do not always come to fruition, this can have a profound impact on the community, resulting in underestimation and under-preparedness, which can lead to increased public exposure to imminent dangers and therefore loss of life and a slower recovery (Kapucu, 2008; Cozma, 2006). It is suggested that this can be overcome by having consistent information across a number of trusted sources to increase the credibility in the information given (Cozma, 2006); however, making this information more prominent above other sources are a challenge (Wood et al., 2012).

Once information has been received, it is then important that people perceive themselves to be capable of carrying out the detailed actions. Such perceptions may positively correlate with wellbeing in relation to managing uncertain and threatening situations (Seeger, 2006; Levac et al., 2012; Pattala et al., 2012). This is known as self-efficacy, belief that people can protect themselves and have control over the situation (Pattala et al., 2012). Research suggests that this may be a factor that affects a person's

willingness to prepare as people are reassured by, and have a fundamental need to feel in control (Bandura, 1977; Hornsely et al., 2015). In the face of fear, perceptions of control can be a psychological resource that acts as a mediator and stimulates constructive behavioural responses (Bandura, 1977).

Combined with a participation in preparedness decision making, self-efficacy can have a positive impact on wellbeing, especially as familiarity lessens perceived uncertainty in a situation allowing people to feel more in control (Pattala et al., 2012). However, this belief in personal capacity to act effectively is also dependent on the outcome expectancy, perceptions about the usefulness and adequacy of the action or measure taken for mitigating the problem (Paton, 2003; Samaddar, Chatterjee, Misra and Tatano, 2014). Although both have independent effects on behaviour change (Samaddar et al., 2014), it is argued that outcome expectancy will precede efficacy judgments, supporting a social cognitive approach to deciding to take preparedness action (Paton, 2003).

Additionally, it is important to understand the public in order to see what motivates or inhibits them to take actions to prepare. As discussed in chapter 1, there are many different factors that can motivate and influence people to prepare. Demographical factors, e.g. gender and age, was one of the most common factors researched (Keenan et al, 2013; Kim et al, 2017). Another common topic of research on this subject was experience of a prior experience, however here there is conflicting evidence found in the literature as to how much of an influence this has. Some studies found that it can impact peoples decision to action by evacuating for example (Adeola, 2009), another study found there to be different types of experience can impact peoples likelihood of it influencing them, for example whether they have an indirect or direct disaster experience and a vicarious disaster experience or life experience (Becker, Paton, Johnston, Ronan & McClure, 2017). Conversely, another study has found that anticipation related to height and strength of residence and control and trust in official are much more strongly related to people's likelihood to prepare than what a prior experience of an incident was (Rustemli & Karonci, 1999).

Furthermore, the type of information given to people can also motivate them to prepare or not, previous research found that people were motivated by actionable risk, what to do about the risk rather than information on the risk itself,, so people know what to do,

were to go and when so they can follow the instructions from professionals in adequate time (Adeola, 2009). Some studies have found that varied information is preferable as it can reach different people through different modes (Adams, Karlin, Eisenman, Blakely & Glik, 2017 ;Tennyson & Diala, 2016). It was also found that people who are prepared seek out information for themselves to become aware (Donahue, Eckel & Wilson, 2014) and trust in messages is the most important determinant in the decision to take preparedness action and so who delivers the messages should also be considered (Paul, 2012).

As well as the unpredictable nature of emergencies and disasters potentially influencing people's intentions, and consequently their decisions about whether to prepare, the level of connectedness people feel to their community is a factor that should be taken into consideration especially as there have been found to be strong associations between self-efficacy not only influencing people's level of preparedness but community resilience too (Adams et al, 2017). For example, people who know of others who have taken one or more preparedness action are more likely to take action themselves, therefore social influence can be more salient than cognitive appraisal and so close-knit communities can encourage each other to become more prepared (Wirtz & Rophrbeck, 2017). Additionally, stronger levels of preparedness have been found in sub-groups where there are strong social bonds and networks (Kim et al, 2017). This is supported by research that has found that shared community identities can emerge from disasters as the community has shared goals, shared problems, perceptions of vulnerability and a collapse of previous group boundaries (Ntontis, Drury, Amlot, Rubin & Williams, 2018).

6.3. Increasing trust and encouraging community intermediaries

A resilient and prepared population is more likely to return to normality following a disaster if it has access to trusted information that can be immediately utilized, thereby allowing the community to take instant action (Longstaff & Yang, 2008). This can also encourage strengthened organizational relationships, which will improve the effectiveness of the response and community coordination (Kapucu, 2008) and can lead to significantly less attribution of blame to other parties (Longstaff et al., 2008). However, one impediment to creating a resilient community is the content of information given to the public. Problems stem from the unsupported belief that the

public will panic if given comprehensive information about prospective risks, despite evidence suggesting that giving incomplete information is what causes panic (Seeger, 2006 & Mawson, 2005). Similarly, agencies do not communicate uncertainty due to the belief that it will incite panic when in fact this causes the public to have less trust in the agency (Holmes et al., 2009). Given that disasters are low probably, unpredictable events, it is inevitable that warnings will come with a degree of uncertainty, but it is essential that information be communicated, even if it contains uncertainties.

Determining what information to give and the impact this can have is a process that may be improved by including the public. This can also encourage the public to trust agencies, which is an essential component to effective communication (Wray et al et al., 2006; Kis et al., 2013). Openness promotes an environment of risk sharing where the public and agencies accept responsibility for risks (Seeger, 2006) and is an effective way of seizing control of media reports, public discourse and customer relations associated with the event (O'Malley et al., 2009). It is argued that this dialogue between the authorities and the public is a better way to increase public awareness (Kis et al., 2013). Svenden (2013) recommends having community intermediaries and improved community engagement. Monitoring public opinion can help to provide a basis for creating messages (Seeger, 2006) as their input does not just demonstrate their concerns but also identifies real and substantive flaws in the plans, which is useful for emergency planners to take on board (Sandman, 2006).

Incorporating the public into the organizational strategy and decision-making process means that they become helpful rather than being treated as a hindrance (Bell, 2010). Although public values and preferences should be included in assessment and management of risks (Renn, 1998; Boholm, 2008), they are rarely acknowledged. This is despite organizational reputations often suffering consequently, resulting in them having to respond to public and media enquiries (Waymer et al., 2007). Risk management is a two-way process that can strengthen people's risk awareness and motivate those at risk to take preventive actions (Kellens, Terpstra & DeMaeyer, 2013). Therefore, the starting point for administering risk communication should be by including the public through collaborative decision making (Palanchar et al., 2007).

6.4. Collaborative decision making

The increasing scope and severity of disasters has led to the wide adoption of collaborative practices through networks in the field of emergency management (Kapucu, Garayev & Wang, 2013). Collaborative decision-making can be defined as *'a combination and utilization of resources and management tools by several entities to achieve a common goal.'* (Kapucu & Garayev, 2011, Pg.366). Collaborative decision-making between stakeholders in an emergency is necessary in order to overcome limitations encountered in high stake, uncertain and stressful environments, as with a disaster (Aldunate et al., 2005). The evolution of disasters forces organizations from different sectors and jurisdictions to work together to confront complex problems that a single organization cannot solve in isolation (Kapucu et al., 2013; Sørensen, & Waldorff, 2014).

Disasters and other major incidents are difficult for the public sector to deal with efficiently and effectively, especially without political decision makers and other public authorities knowing too little about the problems they set out to solve (Sørensen et al., 2014), making collaboration between all the relevant stakeholders a key priority. However, although there is a consensus in the literature that collaborative decision making is necessary (Kapucu et al., 2013; Sørensen, et al., 2014), it is rare that the public are involved in the process.

Academically, decision-making in high stake environments has been examined from an individual, group and organizational level. It has also been examined in terms of the various factors that impact on decisions, which further adds to the complexity e.g. the environment, uncertainty, time pressure, multiple agency involvement and the urgency to make a consequential decision (Alison & Crego, 2008; House et al., 2013; Klein, 2008; Klein, Calderwood & Clinton-Cirocco, 2010; Van den Heuvel, Crego & Alison, 2012). However, there are also decisions that the victims of disasters need to make pre, during and post disaster, which also involve many of the principles listed above. Therefore, the public's perspective should not be neglected in the collaborative models created.

6.5 Local Resilience Fora

Collaborative decision-making in emergency planning is required within local resilience forums (LRF). Both emergency responders (category 1) and cooperating responders (category 2) are required to assess, plan and advise in relation to their contingency planning arrangements under section 2 of the Civil Contingencies Act (2004), which is achieved through participation in an LRF. LRF duties include risk assessment, risk prevention, mitigation and maintenance of a Community Risk Register (CRR). It is also a responsibility of the people participating in these forums to ensure that emergency communications can be trusted by the public as advanced planning for communities that enables resilience is a function of the Government (Longstaff et al., 2008).

Websites are a common information gateway through that a variety of stakeholders can access such resilience information (Herbane, 2011). A study of 34 of the LRF's websites was carried out to examine the extent to which they communicated their responsibilities to stakeholders (Herbane, 2011). Results revealed that there are several influences that explain the differences between what information is communicated about local authority arrangements; these include the legacy of secretiveness, confidentiality and experience or inertia in website usage. Overall it was found that there is a clear tendency to inform the public about local authority activities with only 47% of websites referencing the CRR. This reveals that there was more of a publicity focus rather than an advisory focus, therefore only partially reflecting the duties of agencies under the CCA (Herbane, 2011).

Moreover, when designing these websites for the public, the public is rarely consulted, that mirrors the problems identified within the disaster management literature, further highlighting the lack of research on public perspectives (Pattala et al., 2012). This has resulted in many unknowns such as the current awareness level of the public, an essential first step towards effective public communication (Kis et al., 2013); whether the necessary requirements under UK legislation, namely the CCA 2004, have been met with regard to educating the public about risks (Samuel, 2007); and finally there is still a lack of clear evidence that focuses on the underlying processes that transform information provided to the public into consequent behaviour change (Paton, 2003; Wood et al., 2012).

This chapter aims to bridge the gap between what the current literature states about involving members of the public in collaborative decision making, by further investigating what it is that may motivate or inhibit them from becoming prepared. This will be done by directly asking members of the community involved in the form of surveys and focus groups on their level of preparedness, willingness to prepare and any preferences people may have. This information and research could then address gaps by seeing what information would help people to become interested in preparing for emergencies, which in turn could alter their mindset and, in an emergency, could assist with an understanding that they must help themselves too. This will be done by directly involving members of the public and inviting their views to provide key information that will be used by the local resilience forum, this is not often done this way around. As with previous chapters, people becoming more preparing can allow casualties in emergencies to become a help and not a hindrance to the emergency services as they can help each other.

This data has been generated through an opportunity that has arisen to work with a set of professionals to amend a website that's aims to provide the information for the public on how they can prepare. This specific project provided the researcher with a unique opportunity to find out what the public would like to see on preparing, to ask why they want to see that information and what they will do with this information. This research therefore sets out to address three questions: 1) What is the public's perception of receiving risk information? 2) What processes motivate or inhibit the public's decision to implement preparedness actions? And 3) what are the public's preferences for receiving risk information? The overall aim would be to understand reasons behind why people want to or do not want to become prepared and may help professionals understand how they can encourage people to become prepared for future emergencies so more people can be self-sufficient, therefore relying less on the emergency services.

6.6 Method

'Merseyside Prepared' - Merseyside has 1.4 million residents living in 645 sq. km, equivalent to 2,100 people per sq. km (Office for national statistics, 2012). This type of population concentration, along with the unique architectural structures, involves complex, interdependent systems that make this region both desirable as a place to live

yet vulnerable to natural hazard and anthropogenic threats (Godschalk, 2003). Accordingly, Merseyside Resilience Forum (MRF) and the local communities surrounding this area provide a suitable case study. MRF is a multi-agency partnership that provides guidance and support to the counties of Merseyside in order to improve community resilience. The overall purpose of the forum is to ensure that there is a coordinated multi-agency response to emergency incidents that may have significant impact upon the communities of Merseyside. One specific task of the MRF is to communicate risk to the public. This duty was addressed by creating a website titled, 'Merseyside Prepared'.

The website, <http://www.merseysideprepared.org.uk>, which is being hosted by a local council, provides information with a view to preparing the public so that they are aware of possible risks and what the planned response would be, it is also a place to access the community risk register (CRR). Researchers at the University of Liverpool agreed to be a part of a task and finish group to assist in the development of the website. This was a unique opportunity to be a part of the link between the emergency services and members of the public and something that is not often carried out. This was suggested by the researcher when discussing improving the website as it has the potential to find out more about public preferences and willingness to prepare but could also build relationships between professionals giving preparation information and the public.

The contribution of the researcher was to independently seek the views of the public about a draft version of the website before it was hosted live to attain their risk communication preferences and current level of awareness regarding risks in Merseyside. This was something that this resilience forum had not undertaken before and it agreed to include the public in future, for example the resilience forum have gone on to use the website to ask for opinions on creating an app on preparedness.

Public perspectives for the task were accessed initially through focus groups to gain ideas to create the website or by completing a short survey on preferences for a website and then another survey was put on the website for people to complete and to provide more information to the researchers on their current level of preparedness and resilience forum. Following the launch, website figures were also made available to the researchers to utilize in their analysis.

Participants- A total of 50 local businesses and places of education in the area of Merseyside were chosen by the researcher and a member of the resilience forum looking through an online directory. The number of 50 was decided as it seemed the most manageable number in the time frame that was devised, which was the 3 months between the resilience forum meetings as findings were fed back to the wider group. Businesses were decided They were all randomly chosen from different sections of the local phone book and all were invited to take part by either posting or emailing information about the study and were invited to take part initially. There was no financial gain given in exchange for taking part other than the gratitude of helping a student with her research and being a part of a new website that would help the public to become more prepared for emergencies. The response rate wasn't as good as expected with approximately 10 agreeing to take part, some of them focus groups then cancelled closer to the time of their arranged date due to work commitments.. It was then decided that 2 student groups would also be asked as the majority of students from the university of Liverpool are also based in Liverpool. This specific area of Liverpool was chosen as questions were scheduled to be asked about receiving local information.

Information on findings can be found in the demographic table of information below (table 12) Participants who emailed back or telephoned with a willingness to take part were asked what time, date and location that they wanted and the researcher usually went along to their premises to carry out the focus group. All participants were given an information sheet on the purpose of the study and the outcome (i.e. an updated website based on their information) (see appendix 2) and were asked to sign a consent form in advance (see appendix 3). No payment was given to the businesses and so there was a relatively low response rate. A link to the survey was put on the website for anybody on the website to fill in.

Measures-

Focus Groups: Focus groups are a commonly used group-based method that typically consists of a group of people discussing a pre-determined topic with a researcher present (Randle, Mackay & Dudley, 2014). Focus groups can uncover some aspects that would not be brought to light in a one-to-one interview as it involves in-depth discussions where interaction is key (Liamputtong, 2011). Therefore, this method was

chosen in order to explore the public perceptions and preferences for receiving and utilizing risk information.

There are two types of focus group: a structured approach and an unstructured approach. Structured focus groups are typically employed in market research and usually involve asking pre-determined questions whereas in an unstructured focus group participants are encouraged to talk to each other in a comfortable environment instead of answering questions (Liamputtong, 2011). In the latter, the moderator's role is to facilitate the discussions, not to direct them (Wilkinson, 2008). Focus groups carried out as part of this research applied a combination of both approaches by containing a set of pre-determined questions relating to the website but also allowing flexibility as participants were encouraged to discuss topics mentioned freely.

A total of nine focus groups were conducted, lasting between 19 minutes and 94 minutes (average time was 46 minutes). There were a number of set questions that asked people about their current knowledge, their preference for receiving risk information, how willing they were to prepare, what they thought of the website and what changes should be made to the website and for receiving risk information in the future (see Appendix 11). However, as participants were encouraged to discuss topics these questions were not asked in any order to maintain a flow of interaction and to encourage some free-flowing conversation related to the topic.

Surveys: A survey was used in addition to the focus groups as they do not require the presence of a skilled researcher (Crandall et al., 2006) and it is considered an appropriate tool to assess aspects such as public awareness of risk communication, preparedness information and perception of risks (Kis et al., 2013). Although guidance was taken from other surveys that explore perception of risk information and awareness levels of risk information (Wray et al., 2008), this survey was designed based on the specific research questions of this study. As research intends to gather different information than its predecessors, it is common for surveys to be custom made to cover a multitude of different items (McQueen et al., 2006).

A pilot survey of 10 surveys was also sent out to a small sample of the students from the university in order to help refine the elements of the design, identify items that are confusing or misleading and to rectify mistakes without wasting a lot of resources, time and effort (Smith, 2008). The direct approach to asking questions was used as it

is usually allows people to be honest and trust the researcher more (McQueen et al., 2006). The final survey included 23 questions, which were a mixture of open, closed and a Likert scale (Questions can be seen in appendix 12). For people to complete the survey they just had to follow a link on the survey. Only surveys that were complete were included, partially completed surveys were discarded, this equated to 121 complete surveys. The survey could be accessed by either entering the website or by receiving an email from somebody in the resilience forum as they agreed to put a link under their digital signature. There was also some advertisement in the local newspapers (Liverpool Echo and Metro) about the launch of a new website that signposted people to the website and explained about the survey. The researcher also did a piece on the University of Liverpool website titled 'Becoming an expert: Lauren Swan on informing risk during an emergency (07/11/2014)' explaining the research and again a link was given to the .website.

Analytic Procedure-Content analysis is a commonly used approach to analysing qualitative data, including focus groups (Wilkinson, 2009). Content analysis is 'a research technique for making replicable and valid inferences from data to their context' (pg.21, Krippendorff, 1980). This was chosen over the previous analytical method of thematic analysis as the principles of a content analysis are to describe the characteristics of the given information, ask what, how and to whom something is said before analysing the antecedents of this information to see why something is said and then exploring the effects this communication has in this context (Holsti, 1969; Krippendorff, 1980). This seemed more appropriate as the changes were made based on what the majority of feedback stated and so the prevalence of feedback was important in this case, as apposed to the meaning behind the information given by participants. It was also important that the resilience forum could replicate the procedure for any further focus groups they carry out and so it was more a method of tallying the comments than deciphering any further meaning to what was said.

Content analysis in this case involved coding participants' open-ended communications from the focus groups and responses from the surveys into closed categories that summarized and systematized the data; this was done using an inductive 'bottom up' approach as no prior theoretical framework was relied upon when coding (Wilkinson, 2009). The potential for quantification was also relied on as it was able to give some validity, therefore determining major and minor categories. Furthermore, as

the aim of a content analysis is said to be to '*identify and record relatively objective (or at least intersubjective) characteristics of messages*' (p.141, Neuendorf, 2002), a check of inter-rater reliability was conducted in order to give the analysis some reliability. This was carried out by providing another student with 10 different quotes from the focus group transcripts and surveys and the student was asked to assign it to a pre-determined theme. There was also an option for the student to choose if they did not think the quote fitted any predetermined columns. The student completing the task was able to ask questions about the study and to gain an understanding of what the research was about before taking part. A Kappa analysis indicated that there was an inter-rater agreement of 90%, a strong agreement (McHugh, 2012). There was some confusing between two sub-categories (personal responsibility and self-sufficiency) accounting for the incorrect 10%, following this more detailed explanation has been provided in text. However, quotes have been provided to allow the reader to judge the validity of categories

Table 12: Focus Group & Survey Demographic Information

Response type	Gender (M/F)	Age	Occupation	City of residence	Postcode prefixes
Focus group 1	2x M, 2x F	18, 28, 34, 50	Hairdresser, banker, teacher, bar assistant	Liverpool	L7, L7, L8, L26
Focus group 2	4 x M	21,23, 24, 19	DJ, store supervisor, bar assistant, student	Liverpool	L14, L15, L15, L19
Focus group 3	4x F	22,22,24, 25	All students	Liverpool	L8, L8, L15, L15
Focus group 4	2x M, 2x F	18,35,36, 45	Security, child minder, business owner, student	Liverpool	L12, L12, L12, L14
Focus group 5	2x M, 2x F	29,42,68, 69	2 Volunteers in charity shop, 2 carers	Liverpool	L7, L13, L13, L14
Focus group 6	4 x F	21,22,22, 22	All Students	Liverpool	L8, L8, L15, L15
Focus group 7	2 x M, 2 x F	38,42, 42, 43	Care home nurses	Liverpool	L7, L13, L9, L14
Focus group 8	3x F, 1 x M	21, 26, 32, 36	3 child minders, 1 business owner	Liverpool	L14, L14, L15, L25
Focus group 9	4 x F	19, 24, 25, 42	3 beauty salon employees, 1 business owner	Liverpool	L2, L7, L15, L25.
Survey	41 x M, 46 x F 34 unknowns	36 (mean)	53 employed, 17 students, 12 unemployed, 6 retired, 33 unknowns	-	-
Total	36 Focus group respondents 121 survey respondents				

6.7 Results: Focus group and survey findings

This chapter sought to answer three questions: what is the public's current perception of receiving risk information? What processes motivate or inhibit people's decision to implement preparedness actions? And what are people's preferences for receiving risk information? Therefore focus group and survey data was collated and a total number of 4 966 (18.97%) of the 26,173 words available from both the surveys and focus groups were extracted for analysis due to their relevance to the research questions; this equated to a total of 307 quotes. It is important to point out that some of these are words, some are shorter sentence quotes as they come from both surveys and focus groups, but all were included in this analysis. More detail on the survey results can be found in table 13.

Using the aims of the research, three main categories were then established from the data which were: risk perception, what affects people's decision to prepare and preferences for risk information. The category of what affects people's decision to prepare also has four sub-categories which are: assessment of threat, sense of community, personal responsibility and self-sufficiency. The coding framework, including prevalence of categories and sub-categories can be found in table 14.

Table 13: Results from survey

Questions in survey and relevant category	Findings of survey
Risk Perception	
Are you aware of what to do if an emergency occurred in your area?	88% = no (n=72), 12% yes (n=10)
Are you aware of any evacuation plans?	100% = no (n=82)
Are you aware of the CRR?	88% = no (n=72), 12% yes (n=10)
Are you aware of any advice given?	9% = yes (n=7), 91% = no (n=74)
Statement: I am given enough information to be prepared for possible local emergencies (<i>1= strongly disagree, 10= strongly agree</i>)	Mean=2.59, SD=2.21 (n=69)
Statement: I believe local organizations provide me with enough information to be prepared for possible emergencies (<i>1= strongly disagree, 10= strongly agree</i>)	Mean=2.69, SD=2.24 (n= 69)
Statement: I want to know more information on how to be prepared for possible emergencies (<i>1= strongly disagree, 10= strongly agree</i>)	Mean= 8.94, SD=1.94 (n= 69)
Statement: I believe it would be beneficial to give the public more information about preparing for emergencies (<i>1= strongly disagree, 10= strongly agree</i>)	Mean= 9.04, SD= 1.85 (n= 69)
What information do you currently receive? (68 responses)	63/68 = none Some report receiving fire evacuation, severe weather advice (FRS) and power loss
What affects people’s decision to become prepared	
Do you feel having more information about how to prepare for emergencies would reassure you or concern you and why? (56 responses)	53/56= reassure, 2/56 = unsure, 1/56 =panic Reasons why it would help: It would enable people

	to become prepared and self-sufficient (28/56), it would reduce panic, scare people into preparing, positive to know that procedures are in place. Reasons for unsure: people would forget the information in an emergency.
Preferences for information	
What information would you like to receive? (59 responses)	18/59 how to prepare, 16/59 anything, 17/59 emergency plans and procedures, 6/59 contact information for agencies, 2/59 nothing
In what format would you like to receive this information? (63 responses)	35= online/ website, 40= leaflet/ newsletter, 10= email, 4= social media, 4 = any/all, 1= TV, 1= none.

Table 14: Coding Framework

Category	Sub-categories	Definition	Prevalence
Risk Perception	-	This category was about what people already know about risk, how they have accessed this information and what they thought of receiving risk information	18.24% of the extracted data (86/307 quotes)
What affects people decision to become prepared	(see below)	This category explored the cognitive and social processes that affect people's preparedness decisions.	49.18% of the extracted data (152/307 quotes)
	Assessment of threat	This sub-category found the closer risk is in proximity and the more 'real' the threat is (the higher likelihood of occurrence) then the more likely people are to convert their intentions into actions.	25.73% of the extracted data (79/307 quotes)
	Sense of community	This sub-category found that the less connected people feel the more likely they are to take notice of risk information in order to become a part of the community.	7.81%, of the extracted data (24/307 quotes)
	Personal responsibility	This sub-category found that families or people with responsibilities are more likely to listen and prepare.	6.84% of the extracted data (21/307 quotes)
	Self-sufficiency	This sub-category found that people report wanting to know what they can do to protect themselves and possibly others, in order to become self-sufficient.	6.19% of the extracted data (19/307 quotes)
Preferences for risk information	-	This category looked at what information people wanted to receive and in what format.	25.41% of the extracted data (78/307 quotes).

Risk Perception- This category was generated to identify what people already know about risk, how they have accessed this information and what they thought of receiving risk information. This made up 18.24% of the extracted data (86/307 quotes).

Focus group discussions revealed that there was little to no awareness of the Merseyside prepared website, the resilience forum, or the Community Risk Register (CRR). Findings from the surveys support this as they show that awareness is low as only 12% or less of the respondents stated that they were aware of emergency plans, evacuation plans, the CRR or of any advice given.

The majority of people also reported receiving no risk information, with some people stating that this was because agencies purposely keep it quiet and other people believing that the only risk information given are the nationally delivered campaigns:

[survey]It's only a national run thing

[focus group]That's just on the run up to Christmas though isn't it?...you know it's never all year round

This could be due to the common belief of agencies that giving information creates panic among members of the public (Seeger, 2006 & Mawson, 2005). However, this belief is frequently unsupported and more commonly it is the lack of information that causes panic (Holmes et al., 2009), which indicates a need for greater transparency.

From the survey it seems that people want to receive risk information and that they believe that it will be beneficial (*See Table7*); however, there was a mixed view in the focus groups as some people argued that information received is currently vague and only released either when reported by newspapers or from non-official sources. They also believed that receiving more risk information might panic some members of the public, encouraging them to become overly cautious. However, people were assuming it would scare and panic others rather than having that effect on them, for example:

[focus group] I think it has the potential to scare people

[focus group]it could create panic, I doubt it, but the hypochondriacs might panic

On the other hand, it was evident that people do want to know information as they believe it is their right and also that it would enable them to identify risks themselves.

[survey]Yes, as prevention is better than cure in any scenario

What affects peoples decision to become prepared- This category explored the cognitive and social processes that affect people's preparedness decisions. This question generated 4 sub-categories and was comprised of 49.18% of the extracted data from the focus group transcripts (152/307 quotes).

Although this question was not asked explicitly in the survey, people were asked to give reasons of why information would panic or reassure them. These responses were often informative and gave an indication of what they would do with the information. The most frequent answer given was that that information would reassure them and that they would use it to be self-sufficient and in control of their own safety, supporting the cognitive processes of self-efficacy and personal responsibility (Paton, 2003).

Assessment of threat (25.73%, 79/307 quotes) - the closer risk is in proximity and the more 'real' the threat is (the higher likelihood of occurrence) then the more likely people are to convert their intentions into actions. It was reported that some people will only take action if they believe the threat to be 'real' that means danger is imminent, there will be consequences and it is close to them. They will also take action if the threat can be corroborated, for example if there is a risk of flooding and there is heavy rain outside then people will do something about it. This also included complacency and familiarity as these were also factors people seem to consider when assessing the threat. Examples include:

[focus group]I'd prepare for anything, if I thought it was close enough to me so say you said there's really bad...err say you said to me like there's been a tornado in Manchester I would be like right I'm sorting stuff out cos that is close enough

[focus group]If it was imminent and then I'd click into action and would go out and would prepare

It was felt that there is more chance of people becoming resilient if they are fearful or scared of the consequences. Scare mongering was frequently mentioned as a tactic for making people take action. It was stated that this could be done by providing statistics that highlight the consequences or by providing the accounts of victims from other disasters in order to make people take notice and subsequent action to prepare for possible similar disasters.

Some examples are:

[focus group]If you showed them how fast people die without being prepared...

[survey]Pictures or like accounts of parents who have been in one

Not putting in effort, complacency, was a common topic to emerge with some of the focus group participants stating that action is only likely to be taken if the person has experienced something similar before or if they have a reason. This seems to be as people did not assess the threat as being valid and requiring real action. Nevertheless, people believe it to require too much effort to invest for something that may never happen. Furthermore, there is a feeling of disbelief that things will happen as nothing bad has ever happened to them before and so creating this lethargic, apathetic attitude. This has been found in other research (Cozma, 2006; Kapucu, 2008), however the last two categories identified may be ways in which this can be overcome.

[focus group]I think it would be useful to know but I don't know if I would actively seek the information out. I don't think it would benefit my life knowing the risks specifically

[focus group] yeah, I wouldn't go out my way to research it, to look up risk in my area

However, being able to relate to a situation or being able to visualise it seemed to make people take notice of it and is a possible solution to overcoming complacent attitudes due to a minimal assessment of threat. It is about making people make the links between their actions, or lack of, and the possible consequences in order to overcome the feelings of complacency and denial. This could be achieved through photographs of either locations or of families similar to the population in question, for example:

[focus group]Yeah, I want to see something that is relevant to me

[focus group]Yeah cos then you see how it could have affected you as there's that link and familiarity

From the focus groups it seems that one way to increase the trust in the communicating agencies communicating, they should tell people what actions they are taking to mitigate risks. This in turn, makes information seem credible and means people are

more likely to take and follow the advice. Information given allows people to appreciate agencies that then aids in increasing the amount of trust and confidence people have in them that then makes them take actions to support that agency, for example:

[focus group]The fact that it's already there and it's not like there's a disaster and they're like oh we need to tell people gives you a bit more confidence and its good isn't it?

Furthermore, access to trusted information may create a more a resilient and prepared population as they are able to immediately view the information, trust it and take action based on it (Longstaff et al., 2008). This therefore means that agencies should work on increasing the trust people have for them.

Sense of community (7.81%, 24/307 quotes) - Findings from these focus groups suggested that the less connected people feel the more likely they are to take notice of risk information in order to become a part of the community. It is believed that receiving risk information would therefore create a sense of community by giving people something to talk about and would prompt them to talk to their neighbours:

[focus groups]Yeah like you read a snow warning, tell your old neighbour and you do, it's protecting the community and like yeah if someone has a lose aerial but there's a warning of high winds, check your aerial and those in the surrounding area then you can knock and say look neighbour the website says this and your aerial is doing that

[survey]News gets people talking really

The focus groups also highlighted how people will consider viewing preparedness information if they are others doing the same.

[focus groups] An if you've got a most read or most shared, I don't know if you can put that on there cos, I'm intrigued to know what everyone is reading and sharing

Personal Responsibility (6.84%, 21/307 quotes) - Families or people with responsibilities are more likely to listen and prepare. Responsibility was commonly mentioned, however there was a conflict regarding whom is responsible for taking

notice of the risks and preparing. Some people believed it should be agencies that identify and mitigate risks as it is their job whereas others thought it was a personal responsibility and argued that people should take action and look after their own safety without hesitation due to information available on social media and the news. However, the majority of people argued that if a parent or pet owner then care for those less able (children, disabled or older people, and pets) and make preparing a priority:

[focus groups] Like child-minders and business which have to take notice of these things because it's a priority for them

[focus groups] Well for some people it's a responsibility, like if you're a mum or like a carer or even if you have grand- parents

People who did have additional responsibility in the focus groups, such as a child minder, did support this by saying they would take actions to support their family or to make the environment safe.

It was found that the more involved people are by being either a part of a decision-making process or by having your views heard, the more likely you are to participate in preparing and protecting behaviours. People argued that they wanted to be involved and listened to and in return they would take the necessary actions to prepare. This links to the other social categories as the bigger their input the more likely they are to invest time into preparing but this could be due to feeling more informed and therefore more capable (more self-efficacious), more responsible or just as a result of having more trust in the communicator and information given.

[focus groups] I think if it is for the community a board like that is needed as if it's your community you want to have an input about what is there

[focus groups] you shouldn't have people making decisions about your area as they aren't necessarily at risk; it should be you making the decisions who lives there

Self-sufficiency (6.19%, 19/307 quotes) - People report wanting to know what they can do to protect themselves and possibly others. If people know what to do, then they would do it, but they need to know how to prepare. This knowledge also increases comfort. Enabling people to help themselves was mentioned frequently in the focus

groups, people stated that to make them self-sufficient they needed information that was clear and had instructions on the actual actions they should take:

[focus groups] Merseyside prepared should be like giving tips and telling people how to prepare

[focus groups] Yeah like they're gonna provide advice and make people aware of what they can do

Furthermore, a proportion of people reported only preparing if their actions would make a difference. Some people believed there was no point in them trying to prepare due to their age. Others reported not preparing for incidents such as explosions or terrorist attacks because they felt that even if they did, they would be 'dead anyway'. So, people only prepare if they believe it will have a favourable outcome against the risk, which is in line with previous research (Paton, 2003):

Focus groups] Trains go past my house every day I don't know if they carry anything which is dangerous but if I knew I would think about it. If it exploded, I'd be dead anyway.

[focus groups] If you could do something that would make a difference to protect yourself or whoever and property, then you would.

Preferences for risk information- This last category focused on what information people wanted to receive and in what format. This made up 25.41% of the focus group and survey transcripts (78/307 quotes).

Findings from the focus groups point to a preference for an official known source giving information, such as the council or emergency services, as well as the information proving people with instructions for preventing risks. Even if it is a 'what not to do' but just something that you can do yourself, 'actionable information. They also report wanting reassurance such as previous success stories or the good proactive actions that emergency services and other agencies are currently doing, for example:

[focus groups] It doesn't have to be what's going wrong with it, it could be events. It doesn't have to be all bad does it, all events what's going on

[focus groups] Just to get that balance of people need to know the risks, prepare for them but they also need the reassurance that these risks have been around for a while yeah and been dealt with.

Furthermore, more localized and less generic information was requested in a number of different formats so that different people can receive it as not everyone accesses information in the same way. There is also a preference for some two-way communications; this can be done by providing ways for which people can contact the resilience forum such as a contact number in addition to email addresses.

Findings from the survey highlight how some people just want anything at all as more information is better than nothing. There was a mixture of responses for the question of which format people wanted information, the main responses were online or via a website, a leaflet or a newsletter and via email. Although social media is a newer medium, it was surprisingly not a popular response; however, this could be due to the specific groups included in this study, for example, the age of the population included in this study, or could be due to the type of information not being suited to social media.

6.8 Discussion

The aims of this research were to find out what people's perception of receiving risk information is, what processes motivate or inhibit people's decision to implement preparedness actions and finally what people's preferences are for receiving risk information. It was found that people have a low awareness of risk information and a mixed perception of receiving information due to beliefs that some of the information is hidden. Preferences included receiving actionable information through a range of different formats to reach different people. Furthermore, it was found that assessment of threat is a motivator that affects people's decision to become prepared and to take preparedness action as people can be complacent if they do not believe the threat is credible. Sense of community, personal responsibility and self-sufficiency were other important factors found too.

The most common factor that can potentially affect people's decision to take preparedness action was assessment of threat. This can have an impact on how prepared people are willing to be; however, it is difficult to provide accurate

assessments and predictions of threats (Kapucu, 2008). Furthermore, it is argued that people should learn to cope with uncertainty (Godschalk, 2003) and communicating uncertainty is often found to increase the trust people have in the agency (Holmes et al., 2009). However, allowing people the chance to assess the threats, even if the information is uncertain, may increase trust and the ability to cope although it can also cause public complacency. Being complacent when assessing the threat was also a common issue with promoting risk information as people have much more imminent and certain pressures to consider in their daily lives (Kapucu, 2008) and receive a lot of information (Wood et al., 2012). In this study people argued that they would only do something if they really had to. However, as well as previous suggestions from other research, such as having consistent information across trusted sources (Cozma, 2006); further suggestions have come from this research to overcome this apathetic behaviour.

Another factor that was found to possibly influence preparedness action was 'sense of community'. Previous research has found that the more connected people feel to their community, the more likely they are to take positive action (Paton, 2003; Levac, Toal-Sullivan & O'Sullivan, 2012). However, this study found that it was not so much how connected people already feel but how much they wanted to feel connected as they believed that being aware of risk information in their local area would increase this sense of community and would allow them to help others in their community. Therefore, actively acknowledging risk information was a way to increase a person's sense of community.

Responsibility has also been linked with the chances of people taking actions to prepare (Paton, 2003). This study also found the same as previous research as people seemed more likely to take action if they felt personally responsible or had other responsibilities such as children but were less likely to be positive about taking action if they believed the responsibility lay with the council or other agencies. Encouraging people to take responsibility for their own safety could then be a motivator for taking action. However, to do this people must be in control, capable of carrying out actions and must be enabling to help themselves (Pattala et al., 2012); this is known as self-efficacy.

In this research, the more people capable people felt, the more they reported a willingness to act if the situation arose. This was linked with outcome expectancy as people stated they would only carry out actions if they thought it would make a difference. Therefore, providing people with more information about what to do in the emergency and how it would help would inform self-efficacy and would increase the likelihood that people will take actions and become self-sufficient. More information was found to increase people's likelihood of becoming self-sufficient too. This was also undoubtedly a common preference for people too and it supports previous work that states that communication about actions you can take is more likely to impact the decisions people make about preparing (Wood et al., 2012).

This research answered some of the identified gaps in the literature as it investigated ways to maximise public preparedness action and also including members of the public in the research, which again is limited in this area of research. However, it is not without limitations. According to some researchers, the requirements and awareness levels of risk in rural communities are significantly different in comparison with urban communities (Kapucu, Hawkins & Rivera, 2013). This means that the findings in this study may not be generalizable to all communities and more research would need to be carried out, especially as this was only limited to a small number of people in Liverpool. Furthermore, involving people in any decisions, as part of a collaborative decision-making process, will enable the public to act as an intermediary between risk information and the agencies responsible; again, securing public trust. The task of investigating the preferences for a website being created by the resilience forum was one step towards this collaboration and may be another motivator to listen to advice given. This was also found to be of importance throughout the focus groups as people state that they thought being involved would increase the likelihood of them taking preparedness action.

However, there are also some methodological concerns with this study as focus groups were used. Some criticisms of this method of data collection include the fact that some people might not actively take part in discussion, some topics may be too personal or people may have strong opinions and may influence one group discussion (Liamputtong, 2011), especially as not everybody in the focus groups knew each other. This could have explained why some focus groups were shorter than others and why others, where people knew each other, were longer. Other reasons for the

differences in time were due to time restrictions, for example some people agreed to take part during their lunch hour and so was in a rush. Furthermore, there is some support that focus groups produce over-critical comments, this is possibly due to participants seeing the focus groups as an opportunity to vent their frustrations to someone who is interested in hearing their views (Randle et al., 2014). Although efforts were made to prompt people to give a enough rationale for their beliefs, it still should be taken into consideration that people may have been exaggerating. The researcher tried to overcome some of these issues by providing all participants with name tags prior to the start of the focus group so that the researcher could include others by name and so the researcher could politely interrupt anybody taking over the focus group.

Other limitations include the fact that not all data was used for the study, for example not all questions included on the survey were useful to this research. The reason for this is because the resilience forum requested certain questions that were important to them, but were not necessarily relevant to this research. However, as it was a collaborative effort they were included, and answers provided back to the resilience forum. This is part of the compromise that is necessary for working with agencies and for a positive continued relationship.

Nevertheless, the findings that people have a low awareness of risk information and of the community risk register is especially problematic as it is listed under the Civil Contingencies Act 2004 as an obligation (Samuel, 2007). However, the website is evidence that information is available, but people are not making it a priority to either look for it or take notice of it. This therefore supports research by Paton (2003) that states that simply transferring knowledge is not enough to support people's decision to prepare and so more research is needed on a larger sample of the public to investigate why people do not seek this information and what the government could do to help advertise the information available

This work investigated what processes may affect people's decision making and may be a part of the identified shift from intention to implementation (Paton, 2003; Wood et al., 2012). Moreover, this study has encouraged community resilience as the 155 participants would have been prompted to view risk information. It is therefore suggested that agencies encourage more people to participate in research such as this

as it assists building relationships between them both and again means more meaningful information is created and dispensed. More studies should also look at the social and cognitive processes involved in members of the public when it comes to implementing preparedness action.. Additionally, it would be beneficial to see what processes underpin the decisions of the communicators as it is often found that there is a misunderstanding between how agencies believe people feel about risk information, e.g. it will cause panic, and how they actually feel about it , e.g. it prevents panicking (Mawson, 2005).

These suggestions have a practical use and should be considered by local resilience fora and other agencies wanting to increase the preparedness levels of the public. Based on the findings that come directly from the public, the target audience of communications, the following 10 recommendations can be made in order to increase the chances of preparedness action:

1. Make sure the communicator is trusted and has an official role. Trust can be increased by supplying the public with useful information tells them how to prepare.
2. Increase the public's awareness level of risk information. For example, promote the community resilience register and explain what a resilience forum is.
3. Be open and honest in communications in order to increase people's perception of receiving risk information.
4. Involve people in decisions being made and listen to their concerns and preferences for receiving information.
5. Make the information relatable and familiar to the audience you are trying to reach
6. Make people aware that they are responsible for their own safety, even if they aren't a carer or a parent.
7. Give information on the likelihood and proximity of the threat for people to take preparing more seriously
8. Give more on information on how to overcome the risks, rather than information on the risk itself, in order to enable people to become self-sufficient
9. Provide examples of how other people are preparing for emergencies
10. Explain some of the benefits to actively taking in risk information (*e.g. gaining a sense of community, mitigating the consequences of risks*) and make people aware of the consequences of not preparing

As well as for improving practice, these recommendations may also be useful for policies as they could potentially also increase the levels of trust and confidence people have in the agencies making up the forum (Holmes et al., 2009). It is a cyclic process as people see giving information as considering the public and so trust the agency more, along with the information they give, which then increases their chance of taking action.

6.9 Conclusions

Overall, this research addressed many questions that are unknown about communities today and it took on a rare approach by asking the public directly. The findings of this study also have many practical implications for future communications with the public that can aid in them implementing action. It has been found that agencies wishing to influence people to take action should be trusted agencies who aim to increase people's awareness of information by involving them in the decision-making process and listening to their preferences as a community. More specifically agencies should provide people with actionable and relatable information that will make them self-sufficient and able to mitigate some of the consequences of the threat as well as making them aware of the likelihood and proximity of the threat. This has the potential to strengthen relationships between the public and resilience forum and increases the chance of surviving unpredictable emergencies.

Chapter 7. Final discussion and summary: Highlighting the benefits and limitations to researching casualty behaviour in live exercises.

The aims of this research were to examine public behaviours and perceptions in relation to three key issues: 1) preparing for a major incident; 2) responding to a major incident; and 3) how emergency services interact with the public during their response to a major incident. These areas are of great importance for reducing risk and can be difficult to explore due to the ethical complexities involved in gaining access to casualties and the unpredictable nature of major incidents. In order to achieve these aims, data was collected in relation to three large-scale regional, national and international live exercises that included a substantial number of emergency response personnel and members of the public playing casualties, in addition to focus groups and surveys with the public. Interviews and surveys were analysed using a predominantly qualitative approach due to the exploratory nature of the research. This concluding chapter aims to summarise the previous chapters by providing the practical implications this research has found; by outlining the findings chapter by chapter; by discussing the role of the researcher throughout the research process; to discuss some of the limitations of the methods used throughout the research before suggesting the direction the research should take in the future. This chapter will then conclude by outlining the contribution to research that this research has made.

7.1 Practical implications for emergency responders

This first section will provide a summary of all the recommendations made from each data chapter, they are designed to assist the emergency service practitioners and are based on findings in this research.

1. Based on the accounts provided by casualties, the following recommendations have been identified that can help emergency responders in future when responding to major incidents:
2. Casualties can feel many negative emotions such as uncertainty and confusion, as well as being in pain, but communicating with them frequently can make them feel more reassured and more willing to wait for help
3. Communication needs to be clear and direct and include basic information so people know what they should be doing to help themselves, to follow instructions and to avoid any further harm or non-compliance

4. People expect an emergency environment to be chaotic and full of people panicking too and so it is important to ensure people still understand the urgency and seriousness of an emergency even if there are no people panicking or visible chaos.
5. Encourage casualties who are willing to help each other as there are many benefits. It not only benefits the person being helped physically but the person helping can benefit psychologically too, especially in the recovery phase of the incident. It allows the emergency services to carry out more complex tasks too.
6. Provide casualties with information and/directions on how they can help themselves and each other as it is common for casualties to form groups from being part of a shared experience with a shared fate.
7. Enable casualties to help themselves and each other by providing them with equipment if possible, for example tourniquets.
8. If physical supplies or information cannot be given to people to assist others, then still include people by encouraging people to talk to each other or do things such as hold hands as it will give them a job to do that will keep them busy and out of harm.
9. Provide casualties with more friendly and reassuring communication as it helps people to feel calmer, less stressed, and it could assist people psychologically. For example, ask people their name and tell them you will get to them.
10. Communicate more frequently with casualties, providing them with any basic information that is available about the incident or about any next steps to the rescue and/or treatment process. This will stop any confusion and can help people understand the priorities and possible why it seems there is no urgency.
11. Responders should interact with casualties whilst they are being rescued or treated, giving them a commentary of what they are doing and why, this will help reassure people and comply with procedures.
12. Provide clear and direct verbal instructions to casualties so that they can follow any procedures or processes, such as mass decontamination, correctly.
13. Involve more members of the public in live exercises and training events as it can help casualties gain a realistic expectation of the emergency services but can also allow people to improve or maintain a positive perception of the emergency services.

Based on information from members of the public, when it comes to preparing for major incidents, the following 10 recommendations can be made in order to increase the chances of preparedness action:

1. Make sure the communicator is trusted and has an official role. Trust can be increased by supplying the public with useful information tells them how to prepare.
2. Increase the public's awareness level of risk information. For example, promote the community resilience register and explain what a resilience forum is.
3. Be open and honest in communications in order to increase people's perception of receiving risk information.
4. Involve people in decisions being made and listen to their concerns and preferences for receiving information.
5. Make the information relatable and familiar to the audience you are trying to reach
6. Make people aware that they are responsible for their own safety, even if they aren't a carer or a parent.
7. Give information on the likelihood and proximity of the threat for people to take preparing more seriously
8. Give more on information on how to overcome the risks, rather than information on the risk itself, in order to enable people to become self-sufficient
9. Provide examples of how other people are preparing for emergencies
10. Explain some of the benefits to actively taking in risk information (*e.g. gaining a sense of community, mitigating the consequences of risks*) and make people aware of the consequences of not preparing

7.2 Chapter aims and key findings

The specific aims of the first data chapter, chapter three, was to explore the observed behaviours of role-playing casualties in a major incident by qualitatively analysing accounts of people's experiences in three different live exercises. Findings were grouped under three superordinate themes with multiple themes in each group. The first superordinate theme of experienced and expected emotion had 6 themes: negative feelings and emotions, realism of the exercise, altering expectations, empathy and positivity, expected panic and expected chaos and urgency. This superordinate group of themes overall discussed how people experienced many negative feelings through

the exercises due to the realism that made them alter their expectations of rescue and treatment for real emergencies. It also made them alter their expectations of others behaviour as people assumed there would be mass panic and urgency evident, but realised this was not the case and instead developed more feelings of empathy and positivity. The second superordinate theme of communicated expected has 4 themes: basic information, reassurance, instructions and all information welcome. This covered what people requested due to their experiences and how they were feeling, for example people feeling frightened and confused explained why they wanted more reassurance from emergency responders. Lastly, the third superordinate theme of experiences and expectations from the environment has 5 themes: unfamiliar environment, awaiting rescue, casualties as first responders, equipment requirements and feeling unsettled. This covered more about the experiences people physically endured during the exercises and again explored what behaviours people may have observed or felt whilst experiencing these environments, for example it was found that while awaiting rescue people may help each other. This research contributed to the field of literature by discussing the omission of panic, as it is often expected by people but was not a behaviour observed in any of the three exercises, even though the exercises were all uncertain environments and people did not feel informed or sure of what to do next at times. This supports literature and theories that have found this behaviour is still expected and assumed, especially in people and responders who have little to no experience (Carter et al, 2014b). This supports this research as people playing the role of casualties, with the exception of amputees in action, often had little experience of real incidents and so believed the lack of panic they felt or observed was due to the fact that the incidents were only exercises, despite commenting on how realistic they often felt and looked. Nevertheless, it is a word used often to convey feelings in relation to incidents, such as Hillsborough in 1989 (Cocking et al, 2014), but it is not usually an accurate description of how people behave during real emergency events as was found with the Kings Cross and Deagu underground fires (Donald et al, 1992; Jeon, et al, 2009). Conversely, the usual orderly schemas are followed and people remain patient and await instructions, as was the case in the exercises and why people reported confusion at the lack of urgency and panic that they either felt or reported seeing in other people. Therefore, this research is key in informing people, and responders, that even though they are not observing an expected behaviour under the circumstances, they should still act accordingly. This can also help

and encourage the emergency services to provide clearer and more authoritative instructions and may prevent people waiting for reactions by other people that may not ever appear. This supports historic experimental research completed in 1968 by researchers (Latane and Darley, 1968) on bystander intervention, where people did not evacuate a smoke filled room with a fire alarm going off as they didn't see other people evacuate (who were confederates). This behaviour can be dangerous, especially in a major incident and so to make responders aware and to try to change the views of the public could be extremely useful.

Leading on from Chapter 3, the experiences people had while interacting with each other during the exercises were explored further in Chapter 4. This chapter specifically aimed to look at the experiences and perceptions of people to determine the benefits to collective resilience and cooperating with other casualties. This was done by again thematically analysing interview and survey data from people playing the role of casualties in all three exercises. The themes identified from analysis of role-playing casualty data predominantly highlight the benefits of casualty cooperation, including the psychological benefits, physical benefits and benefits to recovery. Another theme provided practical advice for how the emergency services could enable people to help one another. The key to casualty cooperation seems to be to see casualties as a resource instead of a hindrance. Some limitations were also found as not everybody found it easy to deal with being assisted by other casualties. Nevertheless, it was found that overall it seems the advantages far outweigh any negative points to enabling people to help one another, especially as they may have no choice if it takes a while for help to arrive. This chapter supports reported findings of real events (such as the 7/7 terrorist attacks in 2005 and Mumbai terrorist attacks in 2008) where people involved report receiving help from other people involved. This research therefore extends on research carried out by Dr John Drury and associates who devised the Elaborated Social Identity Model of Collective Resilience (Drury et al., 2009) as it was found that people wanted to help one another. It is suggested that similar to the research in this area, people felt like part of a group during the exercises as they had this shared experience and shared fate and so people often wanted to do things to help each other. This research also supports Dr Holly Carter and research group's work in this area who has proven this model in cases of mass decontamination (Carter et al., 2013; Carter et al., 2015) as this was supported during Exercise KMAF Warrior which involved a mass

decontamination. Furthermore, findings were also consistent in the other two exercises too although they involved a building collapse and train collision.

Chapter five provided an exploratory approach that involved thematically analysing the interviews of role-playing casualties who had experienced treatment or rescue from UK based emergency services and included quantitatively analysing the ratings people gave the services before and after exercises. The chapter focused on understanding emergency response interactions with casualties during exercises and seeing if it impacted on the level of trust and confidence people have in these services. Statistical tests revealed that although people have a high level of trust and confidence in the emergency services, a lack of communication in simulated live exercises can cause a significant decrease in this trust and confidence, particularly for the Fire and Rescue Service. The findings of this study help to understand what caused these changes in attitude. Feedback given by participants stressed the importance of being friendly and reassuring, keeping people informed with the basic information available and giving clearer instructions. Comments highlighted that people do have a lot of praise and admiration for the emergency services but that failure to communicate adequately can impact on these perceptions, which has potential long-term implications. This work supports the previous research carried out by Dr Holly Carter and colleagues too as the communication strategy that was preferred in the studies by this research group is a strategy that gives both practical information to people and health focused information (Carter et al., 2013; Carter et al., 2014). Better communication has been found by this research group to lead people to have better perceptions of the emergency services and a higher level of compliance, as was found and supported in this research too. This information can not only help the responder's reputation from the public but also shows them how important the communication is that they provide people with. In this financial climate it has been found that the equipment and response time may suffer (Brown et al, 2019) but as for most people it is their first time being rescued and/or treated by the emergency services and the main things noticed and criticised was the level of communication. This is something that can be improved upon and is often something which is important for people. According to researchers such as John Leach, people in duress can sometimes struggle cognitively and so clear and direct communication can be key in informing people on the best next steps they need to stay out of further danger. This also supports previous research on conformity by

researchers such as Stanley Milgram (1963, 1965), who found in a series of experimental studies that ordinary people are likely to follow orders given by an authority figure to a high extent as obedience is often ingrained in us.

The final data chapter focused on understanding public attitudes toward developing community resilience. This chapter examines the attitudes of ordinary members of the public who have not experienced a major incident and asks them how prepared they perceive themselves to be should they be caught up in a disaster in the future. The practical implications of this chapter are that it can see what factors affect people's decision to become prepared and to act. As previous data chapters have identified, for those caught up in a disaster have a desire to help themselves and others but need further guidance on how to achieve this. Much of this guidance would be beneficial in advance of an incident but there is limited research focusing on what the facilitators and barriers are to members of the public engaging in preparatory disaster mitigation behaviours. Focus group and survey data were analysed via a content analysis in order to see what people's perception is of being prepared, what motivates or inhibits people to become prepared and what are people's preferences for risk information. Overall it was found that people want to know risk information but there are many social and cognitive factors that prevent this such as people's assessment of threat, sense of community, personal responsibility and wanting to become self-sufficient. The common preference was that information be delivered by a trusted source and in a manner that is 'actionable' so that people know exactly what to do to become physically prepared extends on findings from previous research and supports the idea that people do want to become prepared. This chapter has identified some of the processes that may motivate or inhibit people's decision to implement preparedness actions and has also found what people's preferences are for receiving risk information. Knowing this information can help people to implement some of the information given on preparedness but can also help organisations to cater to people's preferences and needs more when designing the information in the first place. This is important as complacency is an issue in the case of emergencies and with the emergency services stretched in major incidents, it is useful if people can help themselves and others and people felt they would be more able to do that if they were given 'actionable' information. This means information that gives instructions and outlines what people should actually do. This supports previous chapters findings as

people often report wanting to receive communication from the emergency services on what to do and people often do want to help each other. This research also found that people who had responsibilities for others would take more notice of advice, and people who wanted to feel a part of a community would do more to help others in order to feel a level of connectedness. Again this links to the model that this research has previously mentioned, Elaborated Social Identity Model of Collective Resilience (Drury et al., 2009) as again it shows that people wanted to help one another.

7.3 Reflexivity of the researcher

My experience as a researcher in this process was unique and extremely immersive, a researcher diary outlining the daily tasks I did as a PhD Student is attached to the appendix section. This diary details the tasks of every working day throughout my three years of full time research and outlines the many different presentations, conferences, training courses, meetings and experience days that I, the researcher, had with different agencies immersing myself in their terminology, ways of working and understanding the workings between them and how they interact with the public. Attending these opportunities and not turning down any invitations allowed me access through trust and through being transparent and familiarizing people with my research interests. One opportunity often led to another opportunity and, although time consuming and cognitively consuming, it was completely worth it when it came to carrying out my own research and analyses. This greatly increased my level of understanding of the emergency services organisations, roles and priorities. It allowed me to clarify things I was unsure of before I started my analysis and it allowed me as a researcher to see things from both sides and allowed me to express my findings back to the organization in a way that was constructive as I could also outline the processes carried out and could give real suggestions of how they could be improved.

My level of immersion and access to the emergency services enabled me to frequently, and often informally, question the emergency services and went on to help in avoiding bias when collecting research with members of the public and role players in exercises. For example, a frequent suggestion was for the emergency services to provide verbal instructions during decontamination and not just give packs out with pictograms in. Upon talking to a group manager from the Fire and Rescue Service I was able to see the packs and ask for the procedure whilst discussing some of the common

misconceptions. This allowed the group manager to understand why at times members of the public thought the service has parts of the procedure wrong but also explained to me the difficulty of talking whilst wearing the personal protective equipment suits. For example, I was able to rely back a suggestion of a tape-recorded stream of instructions played on speakers in a presentation discussing findings. Had I not been able to discuss the findings and see the equipment afterwards I may not have been able to either understand the feedback or understand why the emergency services have the procedure they do and either way I would not have been able to discuss how changes could practically be made.

Being a researcher during the live exercises at many times felt ethnographic, especially as I signed people up and tried to be a friendly face before the exercise answering any questions. I had often observed the exercise being set, I observed people as close I could during the exercise, and I spent a lot of time interviewing as many people as possible as well as analysing every survey and the majority of transcripts. I felt I spent a lot of time understanding people in these types of exercise environments and felt in the cases of my research I had earned a level trust from them as I was often the person they came to so that I could answer any questions they had. Therefore, as a researcher I felt completely immersed in the situation even though I did not take part in any exercise myself. My participation in the exercises was often considered but I felt I would get more from observing on the outside as how responders reacted to the casualties was also something I wanted to observe.

This also helped with understanding the data I was receiving too as I could see why people would report a lack of urgency as responders were sometimes observed stood around, however people playing casualties on the trains would not have realised they were stood in groups making plans of how to open the train safely to extricate people. This demonstrates a lack of urgency from a casualty point of view, but it is to increase their safety from an emergency service point of view as conversations were about safety issues, such as limiting the amount of glass if a window was smashed. This example highlights how my level of immersion helped me to limit bias on either side as I could see in that moment that communication is important for casualties to stop them judging the emergency services unfairly for the lack of urgency and I could also see how many decisions and considerations the emergency services have to make for the safety of over people. This was in addition to supporting my findings that

communication could have solved the problem by informing the casualties and in return the emergency responders would have had more silence, patience and cooperation from the casualties waiting. I think had I placed myself with the casualties I may have been more biased and justified some of the criticisms for the emergency services. Additionally, had I not been as involved with the emergency services in the lead up to the training events and witnessed other aspects of their roles, I may not have understood the seriousness of their decision making and considerations they have to make for the safety of casualties. I personally do not think I was influenced either way and believe due to my involvement on both sides there was little bias but I do think it took a lot of questioning and thought before rushing to quick judgements.

I did question if seeing first-hand how much work, time and money was spent on the exercises made me bias towards the level of realism and immersion of the exercise environment; especially as it was my first time observing the scene of a simulated major incident. To overcome this discussions with both of my supervisors were also essential as I begun to progress in my studies as, at times, I felt my research was consistency supporting previous findings, even though more differences were possibly expected with my study being an exercise and not a real emergency. Therefore, during research meetings I would often discuss my findings and observations with my supervisors (or sometimes other members of the research team) and they would ask me questions and ask me to explain my thoughts and comparisons to previous research. This helped me to understand and formulate my research and to avoid any further bias than what was expected from becoming familiar with the research and being immersed for an extended period.

One example of how a conversation helped comes from a meeting I had was with a master's student who was also wanting to use some data for a master's project. The discussion I had was that she wanted to write about the panic people had during exercises and discuss how that was not helpful in a real emergency. This made me challenge what I was finding (that panic was a myth) as I had not personally observed it. She explained to me that people had shouted for help and had asked another casualty to shout for her too, this led to the helper going to seek help as the person was unable to move due to having a broken leg (for the purposes of the exercise). However, in discussing this further I was able to explain that this seeking of help and information is normal, forming groups and other people wanting to help is normal and in fact this

situation did not indicate one of panic as there was no sudden feelings of fear that prevents reasonable thought and action nor any evidence of irrational behaviour. Other people crying (or pretending to) was also to this student an indication of panic but again I was able to confidently and logically understand that when in pain and feeling uncertain you may cry, but it doesn't necessarily demonstrate panic. This conversation solidified my understanding and confidence in my findings that panic is a myth yet something that is still expected in an emergency.

Confidence in the research as a whole was also important, especially as it was exploratory and qualitative. It has been argued that qualitative research shouldn't be thought of as worthless due to a lack of empirical value and research suggests that this can be overcome by proving its rigour or 'trustworthiness' (Amankwaa, 2016). Criteria for trustworthiness has previously been outlined as including 4 elements: 1) Credibility, confidence in the truth; 2) Transferability, showing that the findings are applicable in other settings; 3) Dependability, findings are consistent and can be repeated; and 4) Confirmability, findings of a study are shaped by the respondents and not researcher bias (Lincoln & Guba, 1985). Each of the four elements were considered during this research in order to ensure the trustworthiness of this research.

Some examples for what was carried out to achieve credibility throughout this research include peer debriefing which took place daily after each day of the exercises to discuss the interviews that were carried out, the preliminary findings and any thoughts, feelings or ideas. Notes were often made to document this and help when at the stage of transcribing. Peer discussions also took part frequently throughout the process of the transcribing and analysing the data with the researcher and supervisors. On a few occasions' checks were also completed post interview with people. This occurred when people had requested a copy of their transcript or got in touch to ask further questions or for the outcomes of the study; this was also completed during debriefs following exercises. This often helped with the credibility of the research as feedback given or the discussions often were as expected and nothing seemed to be out of place with participants of the study. There was also a prolonged and varied field experience that the researcher took part in throughout the whole time of this research project (see researcher diary, appendix 1). This last point in particular can assist with credibility as it helps the researcher to gain an understanding into the environment being explored

and minimises any interruptions when the researcher is present in the field (Bitsch, 2005).

To see how transferable the research was there often a lot of note-taking that could be referred back to from exercise to exercise and again these notes were often discussed during supervisory meetings. These meetings often discussed the research and plans for research, this included asking the planned questions on the surveys out loud to see if the questions were suitable, the survey was robust and could be applied in a number of different scenarios. This last point was especially useful as surveys had to be quite generic in order for the emergency services to be happy with them and the ethics board at the university.

For dependability it was crucial to have a list of documents and steps required per exercise and to have the same stages for the planning of exercises, during exercises, follow up for exercises and lastly when analysing the data. This was harder to do for the last exercise as the location and level of involvement differed, as previously discussed, but the steps for the initial analysis of the transcriptions was followed and the same documentation was used. Nevertheless, the process could be repeated from exercise to exercise which meant that all the data that was merged into the same dataset followed the same procedures.

Lastly, confirmability which in some ways seemed the most difficult aspect to test as the researcher was so immersed with the exercises and emergency service environment but it did help to also be the main person responsible for recruiting people who were taking part and being the welcome face for them on the majority of the exercises (this was not possible due to the size and location of Exercise Unified Response). However, data was triangulated by using data following three different exercises that took part using different scenarios, different participants, different emergency responders and different locations. Data was also triangulated by using different sources of data, for this thesis a mixture of surveys, interviews and focus groups were used. This can sometimes enhance the quality of the data if they come from different sources (Anney, 2014) . There was often investigator triangulation too as each exercise included a slightly different research team (dependant on the master's students that were involved) and so this meant that different people could add their point of view during the group meetings and discussions prior to and following the exercises. This use of

multiple researchers all looking at the same problems is helpful as it brings different perceptions of the inquiry and helps to strengthen the integrity of the results (Anney, 2014). All of the above combined together to assist in proving a level of trustworthiness with the dataset and research as a whole.

7.4 Limitations of the research and future research

The main limitation of this research is that instead of using real casualties from real major incidents, this study uses role playing casualties from simulated major incidents; this is due to the difficulty in gaining access to and ethically interviewing real casualties from incidents which are unpredictable. Therefore the choice of collecting data from members of the public playing role players was one solution to the problem that also preventing causing any risk of further harm or risking losing information due to memory loss over time (Crandall et al 2006; Horsley 2012). This was also a useful tool in collaborating with the emergency services whilst they want to train and make improvements to their response during such critical incidents, as all research was fed back to them to assist with this. So although there were many strengths within this limitation it still means that all findings cannot be attributed to real major incidents with real casualties without further research carried out. It is therefore suggested that next steps to this research involve interviewing casualties of real incidents and comparing the data to see if findings are consistent with a real group of casualties or if not, what differences are there and why this might be. On a more positive note, this research has compared well with previous research carried out by researchers such as John Drury and Chris Cocking which predominantly used interviews from real incidents. This may have been due to the realism of the exercises, as commented on by many role players frequently throughout interviews and other interactions so although people were safe, they were in a challenging environment that they had not experienced before. In this respect, the data collected from people in these situations still does provide a unique insight into how people behave when in uncertain and complex environments.

Nevertheless people still knew they were never in any real danger and they knew a number of emergency responders were already in close proximity, which is not always the luxury people have when experiencing a major incident. People were never in any real pain or physical or in need of any urgent medical assistance either. Consequently,

it is unclear if the behaviour people reported observing or exhibiting would occur in a real emergency, for example if people were in pain would they still be so willing to help other people or if you were still comprehending what had occurred would you still be cognitively capable of providing help to others. It is also unclear if people would have the same communication preferences from the emergency services for example it is unclear if would people still want friendly communications and reassurance if they were awaiting rescue, they may not be able to process any other information due to the environment and instead may just want to be asked questions about their level of pain and when they could receive pain medication. Therefore, it is important to note that although findings can be compared to other research in this area, this is still only exploratory research and the findings still need to be compared to real casualties in the future to determine the accuracy of them when it comes to real casualties in emergencies.

There were also limitations associated with the use of live exercises. For example, gaining access to three exercises has its own challenges and meant a lot of ground work had to be put in so the emergency services could trust the research team as they were aware that their methods and interactions would be criticised. This meant that in planning meetings, the aims of the research and the benefits had to outweigh the negativity that evaluations could bring. Therefore, the researcher and research team had to provide a number of presentations and proposals to senior staff at the relevant agencies, in addition to attending meetings to become a familiar face that people could trust. This was time-consuming and at times meant putting in a lot of work and hours in when it did not directly benefit the aims of this research. Furthermore, live exercises of the scale included in this research are difficult to plan for due to the number of agencies that have an input when it could be changed at the last minute due to the requirements of other agencies. It was also important to expect changes last minute and so the researcher had to allow for flexibility in the research plan.

For the majority of occasions, the researcher also had to be flexible on survey choice and interview questions as the input of other agencies meant they requested certain questions and in order to satisfy requirements to maintain positive relationships the researcher had to include them, although not necessarily beneficial to this project. This sometimes impacted the research as unnecessary questions can draw the participant away from thought processes that the researcher was aiming towards, although the

questions were grouped together in the best possible way. This can impact the data collected and the research as a whole as some potential key aspects are missed and other things are concentrated on as a result of what organisations want. This is as a result of the researcher being required to cut out some of their own questions, so surveys and interviews were not too long but still had the required questions for agencies. As this was exploratory research some ideas were in their infancy and so for future research to develop this research it is suggested that more concrete surveys are developed based on themes identified in this research so questions become more directed but the reasons for them can be explained in more detail to organisations in planning meetings. This would mean that the research in this area becomes more developed and the rationale behind the usefulness and purpose of the questions included can be explained better, due to having this research as a basis.

As this research was exploratory in nature, a qualitative approach was a practical choice in this research as quantitative research would not have been as effective due to being forced to devise a hypothesis in a topic that has little background research on it (Guest et al., 2013). But this choice itself can be a limitation as using a predominantly qualitative approach means the lack of control and making causal inferences can be questioned. However, the method of data collection afforded some control, a high level of relevance and high ecological validity (Brehmer & Dorner, 1993; Crandall et al., 2006). Furthermore, as data was collected in three separate exercises, this allowed for triangulation across multiple sources (Crandall et al., 2006). The guidelines outlined for thematic analysis were also followed (Braun & Clarke, 2006); although a check of interrater reliability by a second researcher was not possible due to the size of the data set (for chapters 3, 4 and 5), time constraints and availability of a second researcher for the data chapters using exercise data. In order to overcome this a number of quotes were provided in the text to allow the reader to judge the veracity of themes. There were also multiple conversations about the themes between the researcher and two project supervisors, usually straight after an analysis as it was important for the team to understand the initial outcomes before putting together presentations and reports for the emergency responders following exercises. These conversations proved to be a valuable aspect of analysis as they allowed the researcher to form a deeper understanding of the themes appearing from the data.

Additionally, there were many benefits to the time spent during this PhD project meeting with the emergency services, recruiting participants, planning live exercises, attending live exercises, debriefing participants and the days spent collecting data was extremely invaluable in strengthening conclusions and understanding the data intrinsically. However, the informal conversations with emergency responders and casualties and the spontaneous experiences that occurred along the way could not be recorded which was a limitation as some of the experiences would have been useful for the research. Although they still provided the researcher with more insight into the behaviour of people in emergencies and the reasons for the emergency service response and helped to triangulate the data. Future researchers in this area should plan to incorporate some of these opportunities into their research so it is not omitted from the write-ups. This could be done through the use of field notes, which is allowed in qualitative research (Crandall et al., 2006). In this case, this was not something previously agreed upon and some of the communications outside of audio recordings could not be used due to the potential to misquote people. Misquoting is something that could jeopardise the relationship between the research team and the emergency services and so it was decided to not use anything that was not audio recorded, with consent from the emergency services. However, having a more open dialogue at the start of the research about this topic could have changed this issue.

Moreover, as there is only a limited time to collect data from casualties leaving the exercise, especially as people leave in groups, it was important to have a team of researchers collecting data in order to collect as much as possible. However, not everybody on the team collecting data has an interest in casualties from a research point of view and so although an interview schedule was given out so interviews could be semi structured to achieve some consistency, some important points were not followed up on. This meant that the interview data was not as good as it could be and may explain why only one quarter of the total dataset was used in the analysis for the three data chapters. This could have impacted the research by preventing the codes being as developed as they can be due to a lack of depth on some of the interviews. For example, some of the data set contains feedback on how to run an exercise in the future, issues with things such as packed lunches and personal conversation, that although is important for building rapport and ensuring the participant is treated right, it did take up a lot of the interviewer's time when the questions on the role player's

thoughts, observations and expectations during the exercises were not probed further. Having a more consistent research team, who has experience interviewing the public and who has some background knowledge of this area is definitely something which should be thought of for research in the future as it may improve interviews which in turn improve the qualitative analysis and results.

Another limitation that occurred during was data collection as in relation to Exercise Unified Response, as mentioned previously in Chapter 2. The researcher was not as involved in the planning meetings in Exercise Unified Response as they were with the previous 2 exercises. This was largely due to the proximity of this exercise in comparison to the other 2 (first 2 were in Merseyside, Exercise Unified Response was in Kent) and so it was harder to convey what was needed to agencies when it came to facilitating data collection and harder to explain how it will benefit them and why certain things are needed. For example a space indoors with chairs and refreshments during Exercise Unified Response would have meant people were comfortable and they may have spent longer completing surveys and would have been less distracted. Additionally, being part of the research planning meetings meant that the researcher was also able to know how the exercise would run and so they could adjust and adapt to collect research in a certain way. For example, as it was outdoors researchers would have known that paper surveys will not be of much use but iPads could have been used more. Another problem was not everybody who volunteered to be a part of the research team in the exercises had any interview experience outside of their classroom, however in order to have access to a part of the larger dataset for their own projects, a condition was they had to help. The unpredictability of the exercises meant that sometimes people who were expecting to be administering surveys had to carry out interviews and so that did not help the quality of the interviews, although it helped the quantity.

This lead on to a limitation with my coding experiences, specifically for this exercise. As the studies were exploratory and as previously stated the quality of interviews could not be guaranteed, familiarity with the transcripts was crucial for me as the researcher. However for this exercise help was given to transcribe the interviews due to the quantity, in contrast to first 2 exercises that were listened to and transcribed solely by myself in order to understand it thoroughly and to make initial notes. For the last exercise it was more difficult as I did not transcribe every one of the interviews and due to the time constraints, I was only able to listen once to each interview, this was

significantly less than with the other interviews. This meant I was not as familiar with this exercise as the previous two exercises and so may have created a bias when selecting quotes for the reader to view and when undergoing the process of qualitative analysis. Furthermore, each exercise was analysed as a separate entity to begin with. For example, KMAF Warrior was analysed and findings written up, then the opportunity came up for Joint Endeavour and so the same procedure was carried out. However the findings were very similar and so findings were collated and the data set was reanalysed as a whole once data for Exercise Unified Response was available. This was due to seeing the similarities in all three exercises so a decision was made with my supervisors to separate the topics and not the exercises for the data chapters.

This meant the coding experience for Unified Response again felt like I had spent less time on it as I had had 2 years to look over the previous exercises and had also presented findings at conferences and seminars. To limit this bias, in the time following Exercise Unified Response findings were discussed with the larger research group that was available for this exercise, extra time was spent looking through the data as a whole to write up the report and notes were taken on the research team's experiences, again to help reduce any assumptions and bias that I had. Although on the other hand, I did have to keep refreshing myself with certain interviews as I wasn't as familiar with this exercise data as I was the other 2, it did mean I looked at it more but this was also near the end of my studies so it is possible that findings were missed in this larger exercise. Future research should take time constraints and late entries of exercises into consideration as the transcribing and familiarizing of the dataset is a process that can take a long time and can be underestimated. It would also be useful to re-analysis this dataset in the future to see if anything was missed.

One last limitation is that more research is needed to explore some of the ideas found in this research further. For example, the majority of findings were based on the emergency services as a whole (with the exception of the perception ratings) and although sometimes people did make direct reference to the Fire and Rescue Service, Police Service or Ambulance Service individually they should be asked about in depth individually so that views do not get combined and based on all three services. This would be useful in certain incidents that require a bigger presence from one service in particular; for example a larger police presence than fire and rescue presence would initially be required at a marauding terrorist incident. This would have stopped any

bias in results because of one service, for example if people have a more negative view of the police and this research has asked how people feel about the emergency services it may have made the person more critical. Individual differences may have also made a difference to the results of this thesis as some people may be more likely and willing to help others and so they may have been the group of people that signed up to take part in this research to help the emergency services; however that may not be a good representation of the general public. Therefore carrying out a personality test beforehand may help to explain the results better. Lastly, a more quantitative approach to test some of the concepts found could also be of use in future research for example scales which ask how willing a person would be to help and what factors would affect their willingness or more statistical testing on what an impact communication has on people's opinions of the emergency services could also help to improve the service for the future.

7.5 Thesis contribution and conclusion

As previously discussed in the thesis, the area of human behaviour in disasters has been studied since as early as 1920 (Prince, 1920); however until recently the research focused on the premise of people being selfish, violent and prone to panic when threatened with an emergency situations; with research into panic models being prominent (Cocking, 2013b; Manning et al., 2007). Researchers have since discredited this assumption and instead have found that people are willing to help, are more compliant, orderly and cooperative with the emergency services (Carter et al., 2013; 2014a; 2015; Cocking 2013; Cocking et al., 2014; Donald et al., 1992); with a focus on a newer Elaborated Social Identity Model of Collective Resilience (Drury & Reicher, 2000; Drury and Reicher, 1999). This research has sought to build upon these foundations in order to add to this area of research.

Communicating with casualties, the perception of the communication received during emergencies, the impact this can have and the preferences of people for communicating in the future is something that this research has looked into. Previously it is an area which has been looked at in great detail in relation to mass decontamination exercises by Dr Holly Carter and colleagues (Carter et al, 2014a; 2015b). It has been found following a series of field and visualisation experiments that the most effective strategy to communicate with casualties was to provide people with

explanations of the practical process they are going through as well as health focused information; both together explained why it was essential to adhere to instructions given and it did, in turn, result in the highest levels of compliance (Carter et al, 2014a; 2015b).

Similarly, this research found that people wanted to know what had happened, what was happening to them medically and physically as they were being treated and rescued by the services and they often stated they would feel less uncertain about the situation and would be more patient and compliant if they were kept up to date. This supports this research for mass decontamination but also in other contexts (a train collisions and a bus crash) and people explained what types of communication they would find useful. The impacts of poor communication on the other hand, can include non-compliance as well as a decrease in the level of trust and confidence people have for that service (Carter et al., 2012; 2013; Wray et al., 2006). This was also found in the studies included in this thesis that also included a mass decontamination exercise, as well as 2 different incidents. This supports the findings of previous researchers and also suggests the findings can be attributed to wider scenarios, not just to mass decontamination incidents.

Additionally, the elaborated social identity model that explains crowd events as intergroup encounters in which the behaviour of one group can affect the perceptions and behaviour of another group (Drury & Reicher, 2000); Drury and Reicher, 1999) is a current model within this area of research. This has been explored and supported in a related context, by looking at mass decontamination (Carter Drury, Amlot, Rubin & Williams, 2013; Carter, Drury, Amlot, Rubin & Williams, 2014; Carter, Drury, Rubin, Williams & Amlot, 2015). Although this research has not sought to specifically test this model, the findings have largely supported this model in all three of the live exercise scenarios that was used for this research (being stuck on a ferry awaiting mass decontamination, train collision causing a bus crash and a train explosion). It has been found that the idea of emergent shared social identity as a result of a perception of common fate can be applied to the situations that arose in these exercises, where strangers were sat around on a boat, train or a bus awaiting rescue and treatment. Although it was an exercise people still supported each other and wanted to help, often referencing themselves collectively with other people, although there were no previous bonds and no persuasion to interact with others from the research team. of a crowd

facing mass decontamination as the threat and intervention is likely to be experienced collectively among people with no previous bonds and will require coordination and possibly help.

This forming of groups has been found to promote recovery and have often been found to occur in real incidents, such as the 7/7 bombings, spontaneously without intervention from people often prior to the arrival of first responders (Williams et al., 2014; Eyre, 2006; Cocking, 2013). This was found even in the live exercises and was identified throughout the earlier interviews and so supported the findings which state that people should be treated as resources to the emergency services, not as a hindrance (Cocking, 2013). Other research has also stipulated that in order for people to become helpful to the emergency services they should be provided with practical information (Williams., et al 2014); this was built upon in the research as people were asked how they could be encouraged to help or what they would need to help and often stated that they only wanted instructions, some stated tourniquets as time may be critical for some people and there were few suggestions for small first aid kits to be thrown in while responders either find a safe point of entry or whilst they are seeing to the more serious people. This is something that was relayed back to the emergency services as part of the research carried out and was an interesting finding that built upon previous research.

This research has provided a summary of recommendations based on the research too that includes a lot of preferences that have come directly from members of the public playing casualties, this can be a useful practical guide for the emergency services not only during an emergency but prior to an emergency too. One of the chapters included in this thesis also deals with encouraging people to be helpful to the emergency services, themselves and other people around them in advance of an emergency by becoming prepared. Often research in this area has dealt with the differences in demographical information and how that may affect levels of preparedness, for example gender (Keenan et al, 2013) or age (Kim et al, 2017). Although important, this research has looked into what can encourage a mixed group of the population to become more prepared and what their preferences are when it comes to receiving information so that organisations can cater for their needs and understand how to engage with a wider group of people.

This research supported previous research that found that on the whole people have a low awareness of risk information and a mixed perception of receiving information due to beliefs that some of the information is hidden, possibly due to a lack of trust in the organisations involved in providing the information (Kis et al., 2013; Mawson, 2005). Furthermore, preferences of people uncovered in the study found that people wanted to receive ‘actionable’ information, practical information on what they can physically do to make a difference, through a range of different formats in order to reach different people. This may help organisations who may just have a website or may just post out social media bulletins. Factors that can affect people’s motivation to become prepared were also looked into, in the hope that organisations can take them into consideration. It was found that assessment of threat is a motivator that affects people’s decision and so more openness and honesty is needed to explain some of the risks that are apparent in a community; especially as it was found that people are less likely to become prepared and more likely to become complacent if they do not believe the threat is credible. Desiring a sense of community, having personal responsibility for people and a necessity to become self-sufficient were other important factors found in this research too and can be useful for agencies who can use these to target people to encourage them to become more prepared which would help resources in the future, should something occur in their area.

In addition to the above practical implications, this research has other benefits too as the live exercise element has been a safe way for the public to observe the emergency services. It is a rare experience to be able to observe the emergency services at work and it usually only happens when people are casualties, and so are not too interested in asking questions or observing, or when people are bystanders, which is not an appropriate time to ask the emergency services questions or is not safe to observe. Equally, it is inappropriate for the emergency services to try out techniques or to ask for feedback when really rescuing or treating injured or traumatised people, except for in live exercises and learning environments. Often the emergency services are aware of people watching with a mobile phone in their hand, with minimal interaction. Live exercises, on the other hand, provide a two-way learning experience that allows the emergency services to interact with people, ask for their opinions without being recorded or worrying that it will be uploaded to social media. This in itself seemed to increase the perception people had with the emergency services and people were

commonly open and keen to take part in similar research in the future as a result. This therefore was an unexpected positive point of the research which may have occurred without the research team's involvement but it seemed that people felt they were important as their opinions were being listened to and fed back.

As this research has been fed back, it has had a great importance in the future of the emergency service response too, which hopefully helps them as an organisation to learn from any mistakes and teaches them of any things that the public find important. This research in particular was granted access to three unique large-scale live exercises each one with different benefits. Exercise KMAF Warrior included a number of local agencies such as Mersey Ferries and tested the emergency services as casualties were on board a ferry and so the scenario itself was unique to the local emergency services. Exercise Joint Endeavour was a Home Office funded national exercise designed to validate the JESIP programme. This research occurred when JESIP was in its infancy and again findings were reported at JESIP conferences with the findings of the final exercise of the initial training programme, 'Joint Endeavour' have been fed up to the Home Secretary in a bid to have the recommendations heard and disseminated (Alison, Waring, Humann, 2014; see appendix 14 for a copy of the researcher's contribution to the report). This research is an extension of the suggestions in the report, which highlight the importance of understanding public perceptions for developing future emergency service response, especially as it can aid in securing compliance and support from the public (Swan, 2014).

Additionally, Exercise Unified Response was a €1 million European Union funded international disaster exercise, and the largest exercise hosted in Europe to date. Hosted by the London Fire Brigade, the exercise included over 4000 responders and 2500 casualty volunteers. Having access to such a wide range of significant and realistic exercises is a strength of this research as it has allowed public perspectives to be gained from a variety of different audiences in relation to a variety of different types of incidents. The realism of these exercises has been important, not only for ensuring that emergency services and associated agencies were immersed and responded as they would in real incidents, but also for encouraging casualty role-players to do the same. Findings from Exercise Unified Response have also been outlined in a section of a report that went on to professionals at an international level (see appendix 15 for the researcher's contribution to this report).

It is also important to note that these types of exercises are potentially a step in the right direction as they are a chance to interact with the public and leave a lasting good impression, in advance of an emergency. These types of exercises have been running for several years in order to test operational procedures or equipment; however it is not commonplace for a research team to be independently collecting data to feedback points to the emergency services afterwards. It was also recognised by the Chief of Merseyside Fire and Rescue that role players were leaving without being asked for their opinion, even though they are in effect the ‘customer’ of the emergency services. This collaboration between the emergency services and University of Liverpool is something that should be replicated across the country in order to maximise learning opportunities. As a researcher, knowing that the findings are being presented back to the providers of care and treatment makes it important to collect the honest views of people in a way that is conducive to change, constructive and also with an understanding of the difficulty the job entails. It also helps to see the real-world implications of this type of research.

Some implications of this research on the whole are that it has found what can impact a person’s behaviour during a major incident, it has explored how people interact with one another and it has taken into consideration how people feel and what people prefer when being rescued and treated. This information can now be used by the emergency services to understand what behaviours to expect from casualties when rescuing them, how to enable casualties to help others and how to deal with people in a way they prefer. If some of the suggestions are followed, casualties may be more trusting, compliant, positive emotionally and could possibly become a valuable resource. This research has also shown that a lot of the improvement suggested by people are manageable as they are interpersonal skills such as being friendly, understanding and communicating more; this therefore does not require additional funds that is a challenge for the emergency services in this climate.

More specific implications that have come from this research have included a three-hour slot on public engagement and casualty behaviour in incident command training for firefighters in Merseyside Fire and Rescue service. This is something that was not included before, but it is now delivered quarterly by the university research team in addition to delivering presentations of findings to groups of different levels of the emergency services. In addition to the research carried out by the University of

Liverpool, the work and the presence of other academics in this research area (Dr Anne Eyre for example, Eyre et al., 2014) at government funded events such as JESIP has meant that there is an inclusion of the importance of casualty behaviour and public engagement which was not present in the early stages of programme such as JESIP.. These are necessary steps towards including the behaviour, management and preferences of casualties into future editions of Doctrine given to the emergency services and supporting agencies.

Furthermore, people becoming more prepared in case they were caught up in an incident can be just as useful to the emergency services as again they can become a resource to help themselves and each other. This research has made a start in including the public in the local Merseyside Resilience Forum, in the hope that people choose to become more informed and again to encourage public engagement and positive relationships between the emergency services and supporting agencies and the public. One specific output of this work is the creation of a more detailed website preparing people for major incidents (MerseysidePrepared.org.uk) using suggestions given by members of the public during this research. Again, this is something that had not been initiated previously. The original website for this region simply contained a few links and was not appealing to the public, nor was it advertised. The information on this website is now easily accessible to many age groups as a result of this research, is visually appealing, contains the requested, appropriate information and has been well advertised locally as a direct result of the findings from this research.

In conclusion, one consistent finding throughout this research has been that people want to be kept informed and want to be able to help themselves or other people. This may be to prepare for emergencies or during emergencies, but either way people want to be proactive where they are able. Whether this is physical help to move people away from danger or by providing reassurance and support to psychologically help people, the benefits affect everybody involved. Specifically, the advantages to the person helping included giving them a focus and so are not at risk of becoming cognitively impaired (Leach 1994) as well as giving them a sense of morality upon reflection; the emergency services are given time and space to carry out more specialised tasks and of course the person receiving the care is either physically or psychologically better off. However, direction and support are needed and so the emergency services should embrace this and consider how they may treat casualties as resources. Therefore,

providing people with more information on how to become prepared before they are involved in something takes some of the pressure off emergency services, as people can again become a support system to each other. Communication is the most common improvement suggested and is also manageable in this financial climate for the emergency services to improve. Improving communications and assisting people to help themselves and each other can also remove some of the reliance that there is on the emergency services and means people become more proactive and are more likely to carry out adaptive behaviours that can save lives in an emergency (Cocking, 2013; Leach 2009). This move to treat people as a resource and to assist them in helping themselves helps to create more of a shared identity with one another and the emergency services so that they feel they are all in it together (Drury et al., 2009). This should be the take home message of this research.

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APPENDICES

Appendix 1: PhD Researcher Diary

1st October 2013- Meeting with 3rd Supervisor Sara Waring, went through questionnaires I put together over the summer, discussed plans for my PhD and data collection for Soaring Dragon which we have been planning.

2nd October 2013- Ethical Approval Granted for Soaring Dragon so emails sent out to the list I have put together requesting participants, emails replied to, database created of their details. Questionnaires worked on some more due to feedback received yesterday.

3rd October 2013- Soaring Dragon postponed due to the MFRS strikes action, emails sent out to participants and organisations I had already asked to disperse information. Read around topic area and looked for new immediate plans.

4th October 2013- Induction Day with the PGR Team 12-4pm, picked up Student Card to use library.

7th October 2013- Emailed Laurence and Sara filling them in on my intended plans and ideas. Arranged my first meeting with Michael Beer (Engineering Supervisor). Read up on doing a synthesis using iterative methods.

8th October 2013- Started reading and getting an idea of the types of articles I want to include in the synthesis and had a play about with the type of question and how broad it should be.

9th October 2013- Continued reading at home through articles and methods for synthesis

10th October 2013- Meeting with Michael Beer, introduction to Konstantine (to help me learn how to carry out a Network analysis) and reading around subjects.

11th October 2013- Articles read on the communication of risk and uncertainty from different journals using certain search terms and starting to results put into a table and on how to do a 'Critical Interpretive Synthesis'.

14th October 2013- Have desk space but no computer and none that work in the room I am so working from the library. Wrote up a rationale (880 words unedited) for why I'm choosing to do a Critical Interpretive Synthesis and some bits for method section as it could make up part of my introduction. Emailed Michael and Konstantin with my MSc dissertation.

15th October 2013- read an article suggested by Konstantin on Complex Networking and made some notes as it is something, I may do so need to understand it. This was suggested by Michael to work on the social networking I had done.

16th October 2013- online course started on 'Complex Networking Systems' via <http://www.complexityexplorer.org/online-courses/3> recommended by Prof Beer & his colleague Dr Zuev.

17th October 2013- Still no computer. Read and took notes on 'Lectures on complex networks' by Sergey Dorogovtsev (also recommended by Prof Beer & Dr Zuev).

18th October 2013- Sent emails regarding the new opportunity that is on offer with MFRS related to observing a crane rescue. Designed newer questionnaires to pilot.

21st October 2013- Meeting with Sara, went through work done, got more detail on the Crane rescue at Crown Street day with MFRS and then made the changes suggested to the questionnaires.

22nd October 2013- Finished reading on Complex Networks and then consulted Michael on my findings. Started up the new questionnaires for the vignette study I am planning.

23rd October 2013- Lecture in ERB 1-2pm. Emailed Michael over questionnaires, emailed Dr Zuev over the networking. Wrote up some information sheet and consent forms for the crown street questionnaires.

24th October 2013- Sent docs over to Sara to look at. Edited questionnaires, made electronic copies, came up with some interview questions and a sheet with my research aims on to send over to the people running the crown place training day. Started writing up a method section for completing questionnaires.

25th October 2013- Answered emails, organised meeting with Michael Beer for next week with Dr Zuev too. Started preparing for that and did more on the Complex system online course.

28th October 2013- Meeting with Michael and Kostia, went through my MSc dissertation and discussed what would be the uses of a complex system from my point of view. Michael suggested a further meeting with Laurence in future, but I am carrying on with my CIS and questionnaires in the meantime.

29th October 2013- Continued with my CIS, searching for articles etc. Emailed Laurence and Sara. Still no computer in my office space so I went to the library.

30th October 2013- read through the material on a 'critical decision method' of interviewing MFRS as I will be shadowing Nikki when she does that, also looked over a transcript for a Lime Street shooter HYDRA that is coming up with Ged.

31st October 2013- Continued with my critical interpretive synthesis in the library.

1st November 2013- Met with Nikki about the interviews with MFRS and about the Lime Street Shooter stuff that we're meeting with Ged over next week.

4th November 2013- Prepared for the interviews tomorrow by reading lit, attempted to sort out my computer in my desk space, emailed Michael Beer over interviewing and printed off all sheets and triple checked forms for Thursday's data collection.

5th November 2013- Spent the day in the FRS TDA (Training development academy) with Nikki doing 2 interviews with different fire fighters (Gary Oakford and Paul Hitchen) and then set up computer- minus leads. Spoke to woman to try and sort this out.

6th November 2013- Spent the morning with Nikki and Ged (Fireman in charge of training) discussing the HYDRA we are creating about a Lime St shooter scenario and then spent the afternoon at the Liverpool Risk and Uncertainty Institute Symposium in the Foresight centre.

7th November 2013- Spent the morning with Sara and Michael Humann at the Crown Place construction site observing Fire and Rescue and the HART team attempt a crane rescue as part of their training. Spent the afternoon in Toxteth Fire Station giving out some pilot questionnaires and then following that up with a group interview.

8th November 2013- All day workshop at the Liverpool Institute of risk and uncertainty with Michael Beer.

11th November 2013- Interview with a police officer in Smithdown Police Station with Nikki 11-1pm (Dave Charnock). Edited questionnaires and sent it to Ian (Safety Manager of site) to complete and Sara to look over. Made an online version too

12th November 2013- TDA 10-3pm doing two interviews with Chris Case and Nick Searle. Emailed City Centre and Kensington fire stations.

13th November 2013- Started transcribing the group interview from Toxteth Fire station, emailed other fire stations too. Interview in Mather Avenue Police Station 2-4pm with Geoff Cheshire.

14th November 2013- Interview in Eaton Road Police Station with Paul Levick. Wrote up my findings from the pilot questionnaires on a word doc.

15th November 2013- Day in Fire and Rescue TDA interviewing Chief Dan Stephens and Jim Martin, 10.30-4.30pm.

18th November 2013- Finished transcribing interviews from Toxteth Fire station, continued with CIS.

19th November 2013- Interview with Fire Chris Howard in the TDA then a meeting with Ged in fire. Sent emails regarding setting up a meeting with Michael tomorrow.

20th November 2013- Police interview in Crosby 11-1pm with Kevin Johnson, went to office to check on progress of my computer then a meeting with Michael, Zuev and Eduardo at 3pm onwards regarding a project for my PhD.

21st November 2013- three interviews (Phil Garrigan, Paul Lawless and Richie Davis, 2 hours each) in the fire TDA and a meeting with Paul Lawless (fire) and Laurence Alison to discuss a scenario which is possibly taking place in March 2014 regarding two ferries and a possible RAF helicopter.

22nd November 2013- read over a booklet given by fire on Thursday on JESIP & CBRN and did some reading over 'Network analytical processing' from a PhD thesis which was suggested by Michael Beer. Wrote down some ideas as to how this may be useful for my PhD.

25th November 2013- 3 interviews in the TDA with Rob Pritchard, James Berry and Dave Mottram (9am-4pm) also emailed fire-fighter friend Steve Gadsdon.

26th November 2013- Emailed Michael and Laurence with a PhD update on what I'm doing and intend to do, went to Police HQ to do an interview with Peter Costello and then went and worked on a one-page thesis plan as requested by Laurence.

27th November 2013- Wrote up the one-page rough thesis plan and emailed it to Laurence and Michael. Started to read over some nuclear and green energy articles too.

28th November 2013- 10am interview with Dave Fox in Police HQ.

29th November 2013-10am-2pm in TDA doing two interviews with Kevin Longshaw and then with Myles Platt.

2nd December 2013- 11-1pm interview in St Anne's Street police station with Mark Wiggins then went to office and did some reading afterwards.

3rd December 2013- JESIP pilot course 9-5pm in TDA with police, ambulance and fire.

4th December 2013- Emailed Sara to keep her up to date and did some reading and continuing to write up CIS.

5th December 2013- Interview in Hydra with 'Robert Carden' from Police, coffee with Grace McGuire and then another interview with 'Rowland Moore' in Police HQ.

6th December 2013- Went to a presentation run by the risk institute. It was called Changes in Policing: From Community to Intelligence-led to Socially-enabled Policing by Mr Khoo Boon Hui, Senior Deputy Secretary of the Ministry of Home Affairs, Singapore. Then an Interview with 'Paul Kudray' from North West Ambulance Service in Birkenhead Fire Station.

9th December 2013- 10am meeting with Sara to discuss my proposal that I submitted to Laurence and Michael. (Meeting: Advice given, 10KV shown to me and a discussion about how to progress. Aim to complete and fill in an ethics form, complete CIS by Feb and then concentrate on formulating questions/research for the ferry exercise.) Edited plan and applied to Merseyside Police for a placement to be part of the 'extended police family'.

10th December 2013- Interview with police man 'John Martin' in Wallasey Police Station and then started on the ethics form for my public perception and preference form.

11th December 2013- Completed Ethics form, relevant forms (information, consent and debrief form) and emailed it to Sara.

12th December 2013- My Masters Graduation

13th December 2013- Emailed Sara my plan for the 'KMAF Warrior' training exercise and continued with CIS.

16th December 2013- Put together an advert for 'KMAF Warrior' and edited ethics form etc. Emailed Laurence and Sara forms & Advert.

17th December 2013- Interview with 'Carl Krueger' in the University's Hydra suite. Michael Beer emailed me asking me to write a proposal or two for dissertations so read up on that.

18th December 2013- Completed 2 proposals for Michael Beer and emailed him them. One on the acceptable level of risk and one on unexpected cases of risk perception.

19th December 2013- Interview with 'Simon Irving' In Mather avenue Police Station.

20th December 2013- In Bolton for two ambulance interviews with Steve Hynes and Phil Howcroft

21st December – 5th January 2014- CHRISTMAS and NEW YEAR break

6th January 2014- went in to office, answered emails and continued work on CIS

7th January 2014- worked from home continuing reading and searching for articles for CIS

8th January 2014- office and continued CIS. Edited responder questionnaire too by adding on a hypothetical multifaceted question.

9th January 2014- worked from home continuing reading and searching for articles for CIS

10th January 2014- went in to office, answered emails and continued work on CIS and completed a participant questionnaire.

13th January 2014- went to see Laurence for a meeting, discussed my role as recruitment officer for the KMAF Warrior exercise coming up and then came to office to send a few emails etc. to previous volunteers and over my supervisory record of meetings

14th January 2014- re-did the KMAF Warrior Advert, looked over my questionnaires, read over the ORBIT paper and Interoperability paper, compiled a list of volunteers who had got back to me.

15th January 2014- emailed Michael to ask for ORBIT stuff, agencies to see about advertising and asked Sara about the poster advert. Continued getting my questionnaires right and including the ORBIT stuff. Input some meetings etc. into the PGR Toolkit too.

16th January 2014- continued with questionnaire to include all the orbit stuff, made a paper version and an email version. Sent it to Laurence to look over and then continued with CIS, close to finishing the grid now, I think.

17th January 2014- was meant to be seeing Laurence so just waited by reading and looking into how I am going to analyse my questionnaire. Laurence couldn't meet so I worked with Nikki to do recordings for the HYDRA exercise.

20th January 2014- went to a Starbucks in Cheshire to do an interview with an ambulance woman with Nikki, 'Debbie'.

21st January 2014- updated the participants list, continued with CIS

22nd January 2014- worked in office, continued with CIS

23rd January 2014- re-did the participants questionnaire and sent it over to Laurence.

24th January 2014- continued CIS, wrote up a sheet of themes

27th January 2014- Emailed out the advert for participants (KMAF Warrior), emailed out regarding recording equipment and went along with Laurence and Michael to brief the master's students on the event. Meeting with Sara too.

28th January 2014- Edited my questionnaires following a talk with Sara yesterday. Made them into pre and post event questionnaires for participants and sent them onto Sara to loom over. Emailed more people over getting participants and emailed over equipment.

29th January 2014- Finished my CIS tables; put them all on one document and emailed Laurence and Sara as well as sending Sara my newly edited questionnaire for the responders or agencies.

30th January 2014- Meeting with Ged was postponed so worked in the HYDRA suite with Nikki, carried on reading for my CIS write up, after speaking to Michael I put together a joint agency form and sent it back to Michael.

31st January 2014-31st January 2014-Continued with recruitment adding all the participants to the list, emailed Nikki over in Mersey travel regarding recruitment, edited the questionnaires sent back to me by Sara and sent them onto Laurence to have a look at.

3rd February 2014- continued with recruitment (60 up to now) then made the changes to my questionnaires as suggested by Laurence. Emailed them to Richie and Laura to complete as a Pilot study. Continued to write up CIS review. Unwell today too.

4th February 2014- Sent out pre-questionnaire along with the generic email to inform participants that they are on the list and continued to write up CIS review.

5th February 2014- Continued to recruit and read articles for CIS

6th February 2014- Put all the answers from the 17 questionnaires I have received so far onto an excel sheet, sent the advert to more people.

7th February 2014- Received feedback from Laurence so read articles on mass decontamination (Holly Carter mainly), re-edited the post event questionnaire and asked for some advice from Dan Stephens & co. Received feedback from 3 friends too.

10th February 2014- Made some final edits to the questionnaires taking everyone's advice into consideration, sent it to Laurence and Sara, wrote a brief on Roaring Lion for Michael Humann and also input the details from the pre questionnaires I have received onto the excel sheet.(up to 24 now)

11th February 2014- Emailed Nikki McLaughlin and then forwarded all the final forms out to participants on the list. I also worked on the method section of the CIS Review.

12th February 2014- Made final changes to my questionnaires after speaking to Dan Stephens, input questionnaires that I've received (now at 34). Met Chloe and Anna the master's students to discuss KMAF Warrior and what they want to collect etc.

13th February 2014-Started analysis and writing up my findings for the CIS- conceptual map and reciprocal translational analysis.

17th February 2014- Answered emails, tried to recruit more participants and edited the questionnaire that Chloe and Anna have added on to and sent it over to them to check. Made the font smaller on the post questionnaire to fit it on fewer pages. Put results of pre questionnaires onto excel. Sent Nikki McLaughlin the consent forms. Did a list of people coming on the Dry Run.

18th February 2014- Started writing up findings section onto my review. Spoke to Laurence and re-done the advert for HM Coastguard.

19th February 2014- Emailed students over the dry run and continued to write up CIS Review- findings section

20th February 2014- Dry run at the Pier Head on the Ferry with Sara and Michael and the MSc Students

21st February 2014- Emails out a reminder to all participants to get consent forms etc. back and tried again to get more people taking part. Answered all other emails and met up with Valerie Hahn (MSc) at her request to give her some advice.

24th February 2014- Replied to emails, continued to search for people from agencies to recruit and sent on emails. Input all data from questionnaires received onto the excel sheet.

25th February 2014- Went into the Hydra Suite to do some work, met up with Sara, Michael and the MSc students too.

26th February 2014-Sent emails regarding body cams. Completed the analysis section of the CIS and wrote up a discussion.

27th February 2014- Wrote up the abstract and then took Chloe and Anna to Kirkdale Fire Station to go through a wet run of the mass decon.

3rd March 2014- Completed CIS references and first version sent and checked emails. Wrote up an information sheet for participants.

4th March 2014- Attended a meeting with Mersey travel regarding KMAF Warrior, discussed data collection with the 3 MSc Students afterwards and then came to office to check all forms, create sign in sheets and print them off. I also collected some equipment for Thursday.

5th March 2014- Went to the Pier Head to pick up equipment, went to engineering to pick up equipment, 4pm had a meeting to distribute equipment and check everybody knew where and what they were doing.

6th March 2014- KMAF Warrior took place. Met at 8.30am home at 3pm, started uploading data I recorded and then also emailed out questionnaires to everybody. Organised my paper questionnaires and forms into folders.

7th March 2014- Went to Kirkdale Fire Station to interview Rob Taylor, Group Manager. I then went to meet Chloe and Anna and collected their material from KMAF Warrior. I uploaded the data they had and put it into a folder on my hard drive. Emailed out people I needed to as well.

11th March 2014- Sent emails to all the Gold and Silver commanders from KMAF Warrior. Emailed Dan asked for a log from vision boss. Typed up the debrief sheets too and sent to Valerie. Created a spreadsheet database to input the agency questionnaires so I can then send them onto Chloe and Anna. Received 2 back so far, put them into a database to send on to Chloe and Anna. Emailed Lol & Sara too ask about next week's debrief

12th March 2014- Emailed Susan to ask about sending the Drop box files. Started transcribing the audio from the hot debriefs and sent it over to Valerie.

13th March 2014- Replied to emails and spoke to Dan Stephens and been invited to their internal debrief tomorrow.

14th March 2014- attended an internal debrief at Fire and Rescue's TDA Emailed Dr Alex Forsythe over a 2-day training day for learning how to do psychometric testing.

17th March 2014- replied to emails, completed my half of transcribing the hot debriefs and emailed Valerie. Met up with Sara to discuss KMAF Warrior, started to look into analysing the participant's questionnaires

18th March 2014- Went with Laurence to the TDA Croxteth for the multi-agency debrief but got there an hour earlier! Therefore, had a meeting with Laurence and discussed my progress in McDonalds. Debrief ran until after 4pm, recorded it and uploaded it once home.

19th March 2014- Continued to work through and analyse the questionnaires I have received from the participants. Completed a questionnaire to prepare me for the psychometric testing course next week.

20th March 2014- Went to meet Dr Alex Forsythe to discuss the results of my questionnaire. I then went with Michael and Sara to the Moot Room to observe a BBC Radio Four programme 'Law in action' episode on policing. Discussed my research, debriefs etc. with Sara.

21st March 2014- Continued to analyse the participant's questionnaires and made some changes to the first draft of my CIS.

24th March 2014- Prepared for course tomorrow and continued analysing questionnaires

25th March 2014- Quintax psychometric testing course In Manchester 9-5.30pm with Grace McGuire and Rebecca Coleman. Set up by Dr Alex Forsythe.

26th March 2014- Quintax psychometric testing course In Manchester 9-5.30pm with Grace McGuire and Rebecca Coleman. Set up by Dr Alex Forsythe.

27th March 2014- Came in to office to catch up on emails, print off things, edit some things and book in to some courses. Becky told me of teaching for researchers courses etc. Searched for them and then Chloe and Anna wanted me to meet with them to discuss their presentation.

28th March 2014- Took in the form for expenses for the Quintax trip, emailed about some opportunities and started to organise the data I have.

31st March 2014- Created an online version of the agency questionnaire as we only have 5 responses up to now so this could be an offer which brings in more responses. Sent on the questionnaire to 25 people who haven't returned the questionnaire. Emailed Sara over a research meeting and regarding the teaching for researcher's course.

1st April 2014- Started collating all the ORBIT results from the participant questionnaires and put them all onto one form

2nd April 2014- Started to collate all the questions on decontamination, general and hypothetical questions from the participant questionnaires and onto one form. Met up with Valerie to do a cold debrief (more a discussion) to the master's class only and had a chat with Sara, Michael H, Laurence, Chloe, Anna and Nikki. Emailed Dan and Sandra.

3rd April 2014- Emailed out Betsy, Laurence, Michael, Sara, Dan, Sandra, Kev, MSc Students and Jamie Riley, a man from Liverpool City Council over interviews etc. Finished collating all the first section of the questionnaire onto one sheet.

4th April 2014- Typed up all the cold debrief written sheets.

7th April 2014- Met up with Chloe, Valerie and Anna first and then had a research meeting with everyone from KMAF. Printed off all the sheets to go through.

8th April 2014- Tried to get the information together for the participants that took part in the KMAF in order to give it to Betsy. Emailed Michael. Downloaded a partial response from Qualtrics.

9th April 2014- Emailed Michael and Nikki and went through the post questionnaires to try to get demographic information section prepared for participants wrote up a brief section on it.

10th April 2014- Did t-tests on the data from the pre and post questionnaires using SPSS. Started preparing a PhD plan to give to Laurence, Michael and Sara due to request from Laurence.

11th April 2014- finished PhD Plan and sent it out to Laurence, Michael and Sara.

14th April 2014- edited the CIS and made a version 2 of it.

15th April 2014- Continued to edit the CIS and then sent it off to Lol, Sara and Michael. Made my review appointment for the 9th July 12pm. continued to read methods for the plan (structured sorts etc.)

16th April 2014- Met up with Becky and Grace to discuss and put together some feedback for the Quintax course for John Downes. Completed my PGR Abstract and made a start on the slides for it. Continues to edit and completed the second draft of the plan sent it off to supervisors. All agendas for my supervisory records were also sent off to the supervisors.

17th April 2014 – 23rd April 2014 = Easter Break & My holiday to Berlin.

24th April 2014- Started transcribing 1 of the 3-hour audio recordings I have for Silver in KMAF Warrior to help Chloe out (Sara's request).

25th April 2014- Wrote up a list of questions for the upcoming interviews we have. Organised 2 interviews with Mersey Ferries. Sent Chloe and Anna the list of questions to look over.

28th April 2014- Completed my PGR Work for the workshop course, completed the slides for the PGR presentation and completed transcribing the Silver Audio recording I had. Sent it on to Chloe and arranged to meet Sara over the work.

29th April 2014- Prepared Sara's Quintax profile for tomorrow, printed stuff off in my office and started to put the results together for Fire and Rescue (KMAF Warrior). Email Michael some participant information which I got from sifting through the consent forms sent to me.

30th April 2014- worked from Hydra today. I continued to put together a document with only Fire and Rescue's findings on from KMAF Warrior. Had a meeting with Sara regarding my progress and so she could check over the questions I have prepared for the upcoming interviews. I also ran through her feedback for the personality questionnaire she filled out. We went for lunch and a catch up with her and Michael. Also met up with Nikki Power to have a catch up

1st May 2014- Continued with the report for FRS and went through the questions and preparation for tomorrow's interview with Nikki and Ken.

2nd May 2014- Ferry Interviews with Nikki and Ken in Mann Island, took Chloe Barrett-Pink along with me.

6th May 2014- Council Interview with Jamie Riley, took Chloe with me again. It went well, possibly made a new contact. Continued with prep for tomorrow and on KMAF Warrior transcribing of interviews.

7th May 2014- Did an Interview with Dan Stephens in Bootle HQ, took Anna and got a tour of the new Joint Command Centre.

8th May 2014- Went through Anna's Gold transcript and edited out bits. Continued to transcribe interviews.

9th May 2014- Continued to transcribe the interviews I have been doing. 2/4 complete now. Emailed Sara to keep her informed and to give her copies of the gold and silver transcripts too.

12th May 2014-Continued to transcribe interviews.

13th May 2014-Continued to transcribe interviews

14th May 2014- PhD Open Day from 10am to 2pm, saw and spoke to Michael and worked from my office for the remainder of the day.

15th May 2014-Finally completed transcribing interviews. Sent a version over to Sara, emailed her today too.

16th May 2014- Interview with Kev (MFRS) in Croxteth, completed a draft of my report in my office and then had a supervisory meeting with Michael Beer at 3pm to talk about what I've been doing and what should be my next steps.

19th May 2014- Worked from HYDRA on my PowerPoint and notes for the PGR conference (no internet) and caught up with Sara, explained what I've been up-to lately. Seen Laurence briefly. Also started to prepare an abstract for a conference in Canada which Michael has suggested I attend.

20th May 2014-Sent Michael 2 ideas for the Canadian conference, once he accepted one, I read up on it and started to put it together. I also sent Sara my report so I could start to get some feedback.

21st May 2014- Seen Chloe and Anna in my office to go over the KMAF Warrior interviews and work, answered any questions that I could. Gave them a copy of the MFRS Report that I had done so far, and I gave the copies of the questionnaires from the agencies. I edited and wrote up and the abstract for the conference.

22nd May 2014- Came into the office to do some work. I sent my abstract first to Grace and then over to my 3 supervisors to check over before submitting it. I also wrote up notes for the PGR Conference and edited the slide show for that. Emailed Laurence a page of critical reflections following KMAF Warrior and edited the abstract and sent it back over to them.

23rd May 2014- Laurence asked me to look for some theoretical backing to some constructs so I have started to research these in preparation for the next live exercise. Started reading on them and making notes.

27th May 2014- Edited and submitted my abstract. Edited and submitted my PowerPoint slides. Continued to read and make notes on the four constructs Lol told me about for JESIP exercise.

28th May 2014- PGR 1st year development course 9-5pm

29th May 2014- PGR 1st year development course 9-5pm

30th May 2014- PGR 1st year development course 9-5pm

2nd June 2014- Changed PGR Conference Slides after what I learnt from the course last week, created a Gantt chart which I need to finish off before my review and went back onto the Fire report, looking into the Orbit findings. I also emailed Michael about a conference he recommended (asked him to attend on Thursday) and I completed my annual progress report on 'TULIP'.

3rd June 2014- Practised for the conference. Edited the report for fire and sent it over to Anna. Attended the CAST research workshop over in the Ashton Building from 2-4pm with Michael and Sara.

4th June 2014- Practised for the conference, made a PhD Gantt chart to send to my reviewers in a few weeks. Made a 2-page document for Sara to give to Michael Fischer (CAST) which collated all the technology related questions from KMAF Warrior.

5th June 2014- PGR Conference

6th June 2014- PGR Conference

9th June 2014- worked on editing the JESIP poster and collating all sections of the KMAF warrior report. Sent these over to Sara and Laurence to suggest improvements so I can then change them. Spent the rest of the day transcribing the rest of Kev's interview before sending on

10th June 2014- went into uni, answered emails, wrote the methods section of my ICASP paper, read up on some methods and picked up books from the library.

11th June 2014- read Sara and Claudia's thesis, made some notes and read up on some things so that I can try to put together a better thesis plan.

12th June 2014-wrote up a thesis plan

13th June 2014- went into uni, started reading up for the ICASP paper, met up with Sara and then later read over the JESIP document and sent over a condensed version of my plan.

16th June 2014- answered emails, read a social psychology book and made notes on it just or some ideas on theories etc. read more about thematic analysis and I made some notes on it before I get started.

17th June 2014- started the thematic analysis and made some edits to the PhD plan that Sara sent me back

18th June 2014- had a meeting with Grace and Laurence Tidbury for the PGR Committee coming up as we have nominated ourselves to be reps. we then created some online forms and sent out some emails.

23rd June 2014- agreed with Michael that I'm going to take someone from the conference to and from it. Emailed Diane the Quinatx stuff. Continued with analysis and writing up my themes form my office. Met Anna and Chloe to discuss the inter-rater reliability stuff and to see how they are.

24th June 2014-had a request from Eduardo Patelli to do a presentation on Friday so I had to do a PowerPoint for it and write up some notes to match it. I looked at the results of our PGR Rep online feedback form and answered emails. Carried on with thematic analysis for ICASP paper etc.

25th June 2014- Laurence sent an email with feedback on the report so I went through and made my changes, waiting for Chloe and Anna to do there's and then I can send it back to him and Sara. I also went though and made some changes to the review paper for my PGR Review which I have soon.

26th June 2014- Sent Sara the completed second draft of the KMAF Warrior report. I then practiced my presentation for tomorrow and continued with my analysis.

27th June 2014- went into uni, continued with my thematic analysis by going through the transcripts and making Valerie's the same format as mine and then started colour coding them. I also had a meeting with Michael & co and had to do 10-minute presentation for them all in the engineering PhD meeting.

30th June 2014-finished colour coding all my 45pg transcript and then began to select quotes and write up my analysis. I also sent my PGR Review work.

1st July 2014- had a meeting with Grace, Laurence and the ex-PGR Rep Amy Bidgood. I then finished inputting quotes from the transcript for my analysis

2nd July 2014-wrote up the analysis to correspond with the quotes

3rd July 2014-made a start on the content analysis and researching method papers

4th July 2014- put the whole thing together into one paper, searched and printed more example papers and other things and continued with content analysis write up

7th July 2014- met up with Sara, Michael and Anna in Nero and then I went to the TDA, Croxteth Hall and the JCC in preparation for the Joint Endeavour exercise. Met up with James Berry too regarding some collaborative work.

8th July 2014- Read a document given to me by James, read other things I had printed off last week and took notes so I can effectively finish my paper. Continued writing it. Sent Michael the poster to edit and sent Sara an email about what I should send to James Berry. Emailed James Berry, sent the JESIP poster out to 70 people who registered their interest in KMAF Warrior. Emailed over my inter-rater tables too.

9th July 2014- had a supervisory meeting with Laurence and Sara in Nero and went over everything; also asked for some advice from them for my PGR Review. I then had my PGR Review with Tim Kirkham and Ben Ambridge which went well they just suggested I attend some writing classes to improve my writing. I then emailed an update to Laurence and Sara and asked Michael if he could meet up with my Friday 10th July 2014- Came into uni to start designing a Qualtrics online questionnaire to be give out before the Endeavour exercise. Valerie came in to see me to ask for

help with her thematic analysis, so I helped her and then emailed Michael Humann to inform him. I then had a supervisory meeting with Michael Beer to inform him of my progress and to keep him updated. I then had a meeting in the engineering building regarding what I was expected to do at the conference next week.

11th July 2014- Tied up all loose ends regarding emails, JESIP volunteer spreadsheet and continued with reading articles I had printed so, I could discuss my meeting with James Berry.

13th July 2014- In for the ICVRAM 2014 Conference, went in to help at the registration desk.

14th July 2014- In for the ICVRAM 2014 Conference, transported Bilal Ayyub (Keynote speaker) to and from conference as well.

15th July 2014- In for the ICVRAM 2014 Conference, transported Bilal Ayyub to and from conference as well.

16th July 2014- In for the ICVRAM 2014 Conference, transported Bilal Ayyub to and from conference as well. Also attended Gene Zellmer's seminar who is an architect from the USA wanting to design his own city.

17th July 2014- in office all morning catching up with emails etc. Met up with Chloe and Grace in the afternoon.

21st July 2014- Scott Ferson's seminars at 10am and 2pm. In the meantime, I sent some more emails around to people advertising the JESIP exercise, sent my questionnaire over to Sara and Laurence and I also emailed Michael Beer over my thesis Plan.

22nd July 2014- Tried to recruit as many volunteers as I could possibly recruit for the JESIP exercise. Also attended Scott's seminar at 10am.

23rd July 2014- Attended Scott's last seminar, went to see Grace regarding a PGR issue with Laurence Tidbury. I then replied to emails over JESIP Recruitment, to Scott over his risk perception software, to Rhiannon (again over Laurence T), to James Berry's associates and to Sara and Laurence. Started to read documents and make notes.

24th July 2014- Worked late last night on a grant proposal for Edoardo Patelli. Sent it to him in the morning. Checked over a presentation sent by Sara for tomorrow's presentation. Read over some documents from Fire (James Berry) and made notes, also started on Raphael's document with Franz Knoll.

25th July 2014- Met Sara, Michael and Betsy and then met Dan Stephens to attend a presentation over in Wallasey Fire Station regarding KMAF Warrior.

11th August 2014- Replied to emails that I missed when I was away, arranged a meeting for Wednesday with a woman from Knowsley council, and sent Valerie's tables back to her. Completed reading and making notes on Franz Knoll's material.

12th August 2014- met up with Sara and Raphael Moura to discuss Franz Knoll's material. Discussed the fact that it would take 2 months to write up a chapter which won't really benefit me; therefore, it is not worth it but decided that I will put together a document of suggestions for him. Went to the library to do that.

13th August 2014- Finished the document, it ended up being 9 pages. Added some useful documents and sent it to Michael and Raphael. I also sent a load of emails to gain some more participants for the JESIP exercise. I then went to the JCC, Bootle for a meeting with Vicky Finch, Dianne Smith and Paul Speed discussing my contribution to the LRF Website. I agreed to run some focus groups asking for their opinion on the website. I then sent Laurence and Sara regarding the meeting.

14th August 2014- Replied to emails of those who want to take part in the JESIP exercise, added them to the spreadsheet. Emailed back to Sara after typing up a questionnaire of questions I was

likely to ask in the focus groups and sent that along with the updated spreadsheet. I also had to write up a project abstract to hand in to those who fund me, so I emailed that over as well.

15th August 2014- Replied to emails, added more participants to the list. Emailed back the other PGR Reps and took on the survey related to the Annual Reviews. Created the survey on vocal, added an accompanying email and then sent it to Grace and Laurence to check. I then went over and added my written notes on journal articles I've been reading to word docs, so I have them for when I write something up.

18th August 2014- Picked Sara up at 8.30am, went to the TDA for the last JESIP planning meeting. Met Dr Sabrina Cohen-Hatton and Jerry Westerman etc. Meeting finished about 3pm so was home at 4ish. Replied to a few emails when I got back.

19th August 2014- Sent Lol and Michael the JESIP timeline. Emailed more people about taking part, emailed Mary and replied to other emails. Emailed Dan S about the incident command guidance too and then read through it and made notes; asked Sara to help with it too. Sent Sara my notes so I will wait for hers before I do anything with them. Sent over the PGR Annual Review questionnaire that I created.

20th August 2014- Was supposed to meet up with Laurence today but he couldn't meet so went into the library anyway. Emailed Grace and Laurence T over the PGR responses and an issue over 'tea and cake', looked at organising a coffee morning as well so discussed that too. Spoke to Chloe and another girl Jade who is started a PhD next year. Also sent Lol over Sara's edits of the incident command observations. Looked at Scott's google site regarding risk communication. Read through some natural frequency papers and made notes and sent a few emails over JESIP participants.

21st August 2014- Went to meet Sara at 10am, Chloe then met up at 11am discussed what to do next and what I've already done. I then went to the library. Emailed over the LRF to ask for a letter which Laurence has asked for. Continued to read journal articles and make notes for the ICASP paper and for natural frequency literature. Finally attempted to organise some focus groups. Created and printed some demographic information forms, information sheets and consent forms in preparation for them. Sent the registration link over to students so they can register for the exercise too.

22nd August 2014- Read and made notes on the Crandall 'working minds' book and looked at other papers just to see the method they use. Made some extensive notes. Sent emails to JESIP participants regarding the change of plan, to give them the link to the questionnaire. Emailed the new list to Mary. I also ran two focus groups for the LRF.

26th August 2014- 10am was invited to the Chemistry building to see the Fire and Rescue Service do a familiarisation exercise with the concerned chemicals. Then ran a focus group in the master's room from 1pm onwards to see what people's opinions are on the LRF Website. I then met up with Grace to discuss our progress so far and what we've been up to etc. I also send Dr Franz Knoll over the material I prepared for him.

27th August 2014- Spent the morning going through the ICASP paper and then met Laurence and Gang at 12.30pm for lunch before they discussed the ethos of 10KV and other projects they are doing.

28th August 2014- 10KV training day in the academic board room

29th August 2014- Ran focus groups and continued to transcribe the ones I have done so far.

1st September 2014- attended the Merseyside resilience forum sub-group meetings from 10am-4pm in the Joint Command and Control Centre with James Berry, Diane Smith, Paul Speers and many others. In the break I wrote out an interview schedule, edited the JESIP post event questionnaire and checked over the consent form and information sheet and emailed them over to Sara, Michael and Laurence for them to check over and suggest any changes.

2nd September 2014- Continued to transcribe the data from the focus group- finally finished transcribing all focus groups so far. Met up with Nikki in the afternoon to get some training for the hydra event running tomorrow.

3rd September 2014- Hydra event from 10am-12pm so I acted as the loggist to help Nikki out. I then ran my fourth focus group and transcribed it when I got in. Then I worked until late to write a report of the findings as I agreed to send something over by Friday to Diane in the MRF.

4th September 2014- I was up early to continue to work on a short report to give in to Dianne and the MRF. I completed a draft and sent it to Sara and Laurence to look over. While waiting for a reply I designed another questionnaire on Qualtrics to be used as a post event perception questionnaire in the JESIP exercise. I also sent a reminder email out to participants to complete my questionnaire and so register for the event.

5th September 2014- I had an email from Diane about a meeting which has been set up on the 25th of September 2014, so I went through the comments on the report that Sara sent me and made the necessary changes, but I am not sending the report yet. I also edited the interview schedule for JESIP and started to prepare the PowerPoint for my meeting with the MRF task and finish group.

8th September 2014- Ran another focus group with over 60s and then transcribed it afterwards. Emailed Michael Beer updating him on my progress too. He has asked me to set up a meeting with Michael Beer. Tried to write up a rough PhD chapter plan in preparation for this.

9th September 2014- Edited the ICASP paper. Went to meet up with Nikki for a bit then went in to the office to do some work. Also, a man named Adam Mannis from the engineering department asked if I would be part of the 'social committee', which entails me meeting up with new students arriving next week along with Oscar and Raphael.

10th September 2014- continued to edit a draft of the ICASP paper. Replied to emails and continued to transcribe. Attempted to sort the Macmillan coffee morning too.

11th September 2014- Finished first draft. Went into uni at 12pm and discussed the request from Michael to write some book chapters for Dr Franz Knoll with Laurence and Sara. They suggested I email him to tell him no (in nicer terms). Then had a meeting about JESIP along with Michael H, Betsy & Grace as well. Then I came home, emailed Michael B, Grace (with docs) and Sara with my first draft.

12th September 2014- edited all the JESIP forms, added a logo. I also emailed Sue over in NARU to ask if she could disseminate the link to the pre-event questionnaire. Completed transcribing the focus groups.

15th September 2014- yesterday I finished editing the survey so I made a simple version to pass on to Michael so he can put it on an app. I then went to uni to print off all the docs that I must print so I can look over them, including the changes to the ICASP paper which Sara sent me to look through. I then went to see Michael and Sara so I could help start up all the iPads and make sure they are set up for the surveys to go on.

16th September 2014- Today I met up with Simon (from computer science), Michael and Sara and went on a site visit to the TDA. There we seen all the set up for the exercise and went over plans for Thursday's big exercise. We then went onto the JCC to do the same.

17th September 2014- Spent the day organising myself for tomorrow. Had a meeting with Laurence, Sara, Frankie and Chloe where we discussed what and how we will work on Thursday. I then went back with Michael and helped set up and pack all the equipment, syncing all the iPads too so Betsy could take them.

18th September 2014- JESIP, Joint Endeavour exercise. Met everyone at 6am was home for 6.30pm. Here I collected data, both interviews and had surveys filled in.

19th September 2014- Given the tight deadline I have, I started to sift through the data. Firstly, getting all the info off the Dictaphones and then listening to the interviews and transcribing them.

21st September 2014-Continued to transcribe all the data from the Dictaphones.

22nd September 2014- I completed transcribing the interviews and put all the data off the paper questionnaires onto a spreadsheet database.

23rd September 2014- Met up with Sara and Laurence for a meeting at 11am on how to write up the JESIP report and to debrief and discuss the day. We also had lunch to discuss other things. Came home at 4-5pm and looked at the excel sheet Michael had sent me with the word versions of the iPad questionnaire. Input all the data from the questionnaires onto the spreadsheet

24th September 2014- I went through the excel sheet and made notes and went through the interview transcripts and made note of all the useful quotes. Did t-tests on the results through SPSS.

25th September 2014- Went to the JCC for 10am to present my findings of the focus groups to the resilience forum. There was Paul Speers, Vicky Finch, Diane Smith and Paul Gibson there. Presentation went well, Paul bought me lunch afterwards and we discussed what we will do next (more focus groups and another presentation). Then went to the TDA to give Sandra and Mary some flowers and cakes.

26th September 2014- started to write up the first draft of the report and drew up a line graph on excel to use too. Completed the draft and sent it over to Laurence and Sara.

29th September 2014-went into my office to start editing the KMAF paper, edited my PhD plan and then went to meet Raphael to discuss what I could do with his case studies. After that we met with Ian Duncan and Michael Beer to discuss our contribution to the Franz Knoll book. I then sent Raphael the relevant documents (Canada paper etc.) and left at about 5-5.30pm. Furthermore, I helped Sandra book a venue for the 8th of October JESIP debrief.

30th September 2014- Went through and tried to condense my KMAF paper from 20 pages down to 8! Still not complete. Edited a copy of my section for the JESIP report too.

1st October 2014- OFFICIALLY THE START OF YEAR 2. Went into the office and assisted Adam Mannis, an engineering lecturer, with welcoming the new CDT (MSc + PhD) students into the university. We took them to the Victoria Gallery Museum for lunch and to see the art and history. I then stuck around to help for a bit and tied up some loose ends and bits in uni e.g. printing.

2nd October 2014- Replied to emails and had a bit of an admin day sorted through my folders and reading up on how to do a systematic review for casualty behaviour in place of the CIS I prepared last year on risk and uncertainty. I replied to Sara about doing some work with the Home Office I quickly wrote up some info on a CV and a blurb and sent it over. I then filled out the PGR portfolio of work and the record of supervisory meetings, so I am up to date with all that.

3rd October 2014- I tried my best to reduce my KMAF ICASP paper to 8 pages. Finally completed it and then printed it to check and read over the weekend.

6th October 2014- I wrote out a rough PhD plan for October so I know where I am up to. Sent my version of the KMAF paper onto Sara to read over before sending it to Lol and Michael. Replied to emails. I also went to pick up some equipment for the Macmillan Coffee morning → coffee, cakes, cups and plates etc. Emailed Lol to see if I need to change anything for JESIP report. Emailed Raphael for more information. Put together the appendices for the JESIP report.

7th October 2014- Had a meeting with Laurence T and Grace Mc over the PGR Stuff from 9-11am and then had a meeting with Sara from 11am-1pm with Sue Giles observing for Sara to get her PGCert. We discussed what I had done and how I can improve. I then prepared a presentation for the lab meeting next week in which I am talking about research with the emergency services.

8th October 2014- Had the JESIP Endeavour debrief in Aintree Racecourse with Sara and Michael H from 9am to the end of the day. This involved approximately 100 responders who took part on

the day. Later, I spent a few hours writing up the post-it notes from the day (12 pages worth) so I could send them on to those who wanted them.

9th October 2014- Had a meeting in St Helens over the website with the MRF task and finish group from 9am until the end of the day 4.30pm. Here I looked at the changes being made to the website and helped to edit it. When I got home, I went through the wording on some of the website.

10th October 2014- Today I worked on the website to edit the pages on agencies, risks and reassurances and the upcoming events. I then sent this on to Diane to upload onto the website. I was also emailing Sara and Laurence about the JESIP report. I listened to the tapes from the debrief too. Laurence provided me with some feedback on my section of the report too.

13th October 2014-Over the weekend I emailed Lol, Sara and Michael H about the JESIP report. I also made some changes and sent them back over. I also emailed Michael B to invite him to a coffee morning and to update him and inform him on my plans. He mentioned some conferences and sent me a paper too. I also received feedback from Sara about my KMAF Paper so made some changes to that. In order to get all the information for my stats table I had to re-do my stats! T-tests and data input.

14th October 2014-I finished my PowerPoint presentation for tomorrow. I also finished the ICASP draft 3 of paper and sent it over to Laurence and Michael for more feedback. Also sent my amendments to the JESIP report over to Sara & Co. Emailed Delyth from the council about an opportunity. I also had to inform Laurence and Grace that I couldn't attend the forum next week due to a meeting with the warning & informing group.

15th October 2014- Today I presented in the IFP lab meeting about working with the emergency services. The presentation lasted a whole 50minutes! With questions at the end. Grace, Jade Adams-White, Craig Thorley, Joanne Worsley and another one of Jacqueline's students came along. As I am now Joanne 's official 'buddy' I spoke to her at the end, along with Jade. I then went to the computer room and read some articles, printed some off to read at home too.

16th October 2014- Today I read over the ICASP paper I had started to make changes to, I then sent it over to Laurence in the evening. I also got sent a document from Raphael regarding 'human error', still for Dr Knoll, so I read over that and gave him feedback. I also got asked by Sara to send over a table for the JESIP document, so I worked out people's ages, wrote it up and sent that over too.

17th October 2014- read over some papers that I had printed it have and made notes on them so I could create a questionnaire from my findings.

20th October 2014- Went along to the TDA's operational debrief but it was cancelled last minute so I worked from home from 10.30am onwards. I researched ways in which I could contribute to tomorrow's meeting, write method section for systematics review and I also did some more reading for the survey and then Sara asked did I want to contribute to an interoperability paper so I read through that and searched for some relevant data to add to it.

21st October 2014-. Today I went to the ERB for 'tea & cake' and then I had a meeting with Grace and Laurence about the afternoon's PGR Forum. We discussed what should be spoke about and edited the PowerPoint. I then had to go to the warning and informing meeting in the JCC which had all the representatives from the MRF in. I was there from 1.30-4.30pm. Came home and replied to emails to keep people up to date. Enquired about the Qualtrics software too so I could feedback.

22nd October 2014- Today I went into the office early. Sent emails to Vicky & the MRF, Sara and Dan (about the ICASP Paper).I had to transcribe an hour PGR Forum too as it may need to be sent on to Rhiannon and so I was made aware of what was said, plus grace will be raising some of the points in the PGR main meeting on Friday. I wrote up a draft of the public survey (based on their questions and others I had looked at) and asked Sara to look at it. Dan also gave me feedback, so I made the changes to that document. I also sent Sara a rough PhD thesis plan due to an email she sent. I asked two people to complete my survey so I could get a rough time.

23rd October 2014- Made some last-minute changes and then sent Vicky my draft questions for her to check over. Started work on the interoperability paper by creating a table of demographic information from the agency's surveys. I also started to collate some information on the operational, tactical and strategic as it was needed. Printed the paper off so started to go through it.

24th October 2014- Today we had the Macmillan Coffee Morning so was in university at 8am to organise it and ran it until 1pm with the other PGR Reps. It was a chance to meet some of the other people and I invited all the students that I know (from both departments). We raised a total of £151. I then spent the afternoon reading a book by Anne Eyre from disaster action. I also worked last night on the JESIP feedback, possibly for the last time as the Police have given their feedback. My survey was also sent on to the MRF.

27th October 2014- Today I went into uni to do some work on the interoperability paper and then I went to see Sara at 12.30pm where she was with Ged. We then had a PhD meeting over lunch an hour later. We chatted about JESIP, Sabrina, the project we applied for, my work, publications and impact factors, Michael and the engineering place etc. I then worked on my review.

28th October 2014- I had a meeting with the MRF warning and informing sub group today (mainly Diane and Vicky) but also Paul in the JCC. We went through the survey I had created as someone from the council had left some comments. We then went through and made the final changes to the website before it goes live tomorrow. We went for lunch too and I saw Ged again and Kev in the JCC. I came home and put my survey onto Qualtrics so I could send it to them to view before putting it on the website.

29th October 2014- I went into my office today to work on the interop paper and then I attended a meeting on behalf of the PGR Reps, it was a communication meeting with Chris Deputy, over in the Waterhouse building. It lasted for nearly 2 hours and was all about profiles on the internet and advertising us more. There was also a request to create a 'becoming an expert' piece. I also read a document which Diane Smith (MRF) had created, an engagement document and gave some feedback on it. Sent more emails regarding the website too.

30th October 2014- I wrote up my 'Becoming an expert' article all about working with the emergency services and included a photo of me and Dan S. I sent this over to Sara and Laurence. I also finished working on the interop paper.

31st October 2014- I had one last read over the interop paper and then sent it over to Sara. I received the article back from her, so I made the changes and sent it over to Dan who also made changes and sent it back. I then went along to the PGR induction day as I am a PGR Rep and a 'Buddy' for Joanne. I then had PGR Rep training in the Guild in the afternoon.

3rd November 2014- I had one last read over the 'Becoming an expert' article and then sent it over to the press/comms people in the university. I also worked on a November PhD plan and started to sort through the CIS files & folders which I put together last year as the CIS is now in my plan.

4th November 2014- Went into the office and started reading through the risk perception articles for a possible study of source of information and its impacts on risk perception.

5th November 2014- Spent the day reading articles and inputting them into a table to make my review better.

6th November 2014- spent the morning reading through my ICASP paper as Michael has made a few suggestions. I then prepared for my meeting with Delyth & Liverpool City Council by going through and noting all what I have done and the skills I have (as if it was an interview). Left at 1pm for the meeting and was home after 4pm. It went well, it was more just to find out what they do and what we are doing as a department.

7th November 2014- Went into the office and wrote up some notes/ideas for a meeting which I had at the electronic engineering building with Lol, Sara, Michael, Betsy and Simon. Answered emails and finished off some reading of articles I had saved.

10th November 2014- Today I attended the Merseyside Prepared website launch at the Joint Command Centre. It was with the warning and informing sub-group (Vicky, Chris and Diane) as well as Dan Stephens & Andy Ward and other council and press people. Afterwards I caught up with Vicky and Diane and discussed the app etc. When I got home, I copied and pasted the articles and replied to some emails. I also had to make some further changes to the survey in order to keep Karl from MFRS Press team happy.

11th November 2014- Fiddled about with the risk perception survey I want to send out along with the case studies suggested by Raphael. Wrote up some rough questions and will ask them to check them over tomorrow. I also emailed Sara and was emailing Laurence yesterday (mainly about space). Also looked through the JESIP survey as I can not use the data from under 18s as it wasn't in my ethics form. I started to look for some articles to read before undergoing the analysis too. Printed off the interview transcripts and went through them.

12th November 2014- Today I went in to see Maria Grimes who sorted me out an office in the ERB, same office as Grace. I am delighted! She then gave me an induction of the place and booked me in a safety induction as well as give me a key etc. I then had to go over to Engineering to talk to Raphael and to see if Michael was in. I asked about the Knoll material as well as discuss the risk perception study. I then came over and had a chat with Grace in my new office, got to know some of the others and sorted through a pile of papers which were a previous students (Claudia VDH) as some may be relevant to me. I also emailed Michael to update him.

13th November 2014- Came in to office to go through 10 case studies sent to me by Raphael and went through some literature on the framework he is using, 'CREAM framework' and for purposes of inter-rater reliability I went through and categorized the cases after reading the 10 reports (e.g. Castleford, Buncefield, Formosa plastics, Texas City BP explosion and Fire etc.). I then went to see Michael Humann for an hour to give him my Roaring Lion Data for the repository. Continued the afternoon by starting to go through the JESIP Interview transcripts.

14th November 2014- 10am health and safety induction of the building. Then I had some time to do read some methods for qualitative analysis as thematic may not be the best option for the JESIP data. I then had to do a study for another student, Laurence T. I then went for a coffee and catch up with Grace which was helpful as we could discuss what we're both doing.

17th November 2014- Today I typed up the notes I had made on the different qualitative methods and I continued to go through the JESIP casualty interview transcript, highlighted it and made notes on it. I then met up with Jade Adams-White to talk through how she is getting on and then I had a meeting with Michael B, a man named John Lewis and Raphael M to discuss the ICASP paper predominantly. I was in engineering for the day.

18th November 2014- Today I came over to psychology and started to extract some quotes from the transcript. I then analysed them until I settled on themes, organised the quotes under the appropriate themes and then I put a selection of them together into a table and sent it to Grace to check the inter-rater reliability. I then as a favour for Raphael (engineering) went through and made some changes to his ICASP paper.

19th November 2014- Came into the office and I done some literature searches for the JESIP paper and to add to my CIS table. I completed the CIS log for what I searched and made some notes on what I could include in the JESIP paper by searching for the themes I found. Made some sub-themes of the themes I must organise it a bit better for write up. I also attended a lab meeting 2-3pm with Craig Thorley presenting.

20th November 2014- Came into psychology and continued to read articles I had downloaded for either/both the CIS and the JESIP paper. I also started to look through the questionnaires too for the JESIP paper to see how this related to the interview transcripts.

21st November 2014- Spent the morning reading. Mainly 'Collective conviction' by Anne Eyre and then in the afternoon following an email I received from one of Michael B's CDT students

Petra, I put together some articles and a presentation for her as she is struggling at the minute. I have told her I will meet up with her on Monday.

24th November 2014- Came into the psychology office early to do some work. I continued making amendments to my JESIP analysis by making some charts from the survey data. I edited the inter-rater table and re-sent it to Grace. I then collated all the casualty data which I think I will include and put it onto one document (which was 8 pages). I also ran over to Brodie Tower as I set up a meeting with Petra to go through the articles and folder, I had created for her and to try to help her as she was stuck and feeling lost, she said. Laurence also text me to see if I was around, so I had a supervisory meeting with him.

25th November 2014- Went through a pile of Claudia Van den Heuvel's old research articles...did a google search for literature instead of a university 'Discovery' search to find related articles. 'Slovic' is often cited so I downloaded a lot of these articles and saved them to read and make notes. I continued to read Anne Eyre's book and went through the inter-rater form completed by Grace and emailed Lol and Sara over an opportunity sent to me by Paul Byrne (Liverpool Council's Emergency planning team)

26th November 2014- Today I came into University early, emailed Ged back, emailed Paul, searched for events to add to the Merseyside Website and sent them over to Diane and Vicky. I then emailed around to some of the offices/Chris Deputy to get some further advertisement for the website and for the survey as a last resort before emailing Simon and Karl or others. Also ran a Cohen's kappa on the casualty data. Edited my Nov PhD plan and added estimated dates.

27th November 2014- Today I came into university early and near enough spent all day on the memorandum for Laurence regarding the hydra relocation. I edited the draft Ged sent me and sent it on to Lol and then later edited it again as I did not see that Sara and Michael were copied in. In the mean time I searched for disaster management literature and crisis communication articles and started to look through them.

28th November 2014- Downloaded 'Mendeley' software (recommended to me by another student) and I put all my unread pdfs into it and started to sift through them. Created folders on it and made notes on them.

1st December 2014- I sorted through some of my folders and organised them a bit better as well as starting to put some wording together for the JEISP article (1000 words). I took part in a study for Marc (who is in my office) which lasted 45 mins and afterwards met up with Anna Mattalia who was an MSc student last year.

2nd December 2014- Came into uni and continued to go through articles on Mendeley, making notes which will be useful for future chapters.

3rd December 2014- Went into the engineering building for the morning to work on an introduction for the JESIP article. Then I went on an NVivo course in the computer services building in the afternoon with Grace.

4th December 2014- went to the TDA to see and support Ged as Steve Butterworth was there for a meeting regarding HYDRA. He went through the building to identify suitable rooms and went through hydra in the cloud. He also suggested a quote in the region of £110 000 so tried to contact Laurence to discuss this as it is inappropriate.

5th December 2014- Day off as I went to Paris for the weekend however, I still tried to speak to Laurence about the situation yesterday and so emailed him instead as I couldn't get in touch with him.

8th December 2014- Sent the ICASP paper over to Lol, Michael and Sara for final suggestions. Stayed at home as I was tired from travelling yesterday. Continued with the JESIP paper and I emailed Ged to keep him updated.

9th December 2014- came into the office, replied to emails and then went through some of the corrections which Sara suggested. Main one was adding percentages to the themes and change or add some of the quotes.

10th December 2014- Worked from home by reading and going through to make the final touched to the ICASP paper so it can be sent off to meet the deadline. Continued the JESIP paper once I had finished with the ICASP paper. Also emailed Lol to ask about the hydra inventory list for Steve and was emailing Sara about randomness.

11th December 2014- Came into uni (ERB) and continued the JESIP paper (completed intro, onto analysis write up) as well as making an inventory list for the hydra suite to send over to Steve. Also went to a charity concert thing in the ERB.

12th December 2014- Finished my first draft of the JESIP paper. Completed the discussion, analysis section, and conclusion and done the references. Printed it off to look at in a few days, before sending it over to some of my supervisors to look over.

15th December 2014- Came over to my engineering office and went through my ICASP paper with a fine-tooth comb before submitting it. Find out in Feb if it is going to be accepted. I also fiddled about with NVivo on my engineering computer as I couldn't get it to work last week on my psychology computer. I imported some of the longer KMAF Interviews I have done but need to work out what the best approach is to creating nodes etc. Need to read through the data etc.

16th December 2014- Meeting in the TDA with Sara and Michael. We went to see Ged to discuss how we can add our input to the incident commander training courses they run. This started at 10am and ended at 2pm. I then went for high tea and a catch up with Sara, Louise Almond and Grace.

17th December 2014- Today I came into the office and did a last edit of the JESIP casualty paper before I sent it over to Sara to look at. I also run over to engineering to give out some cards out. We had a lab meeting in psychology at 2pm as well where Laurence spoke.

18th December 2014- Sent Sara my work over and started to organise which data I am going to put through NVivo when I can get it to work. I had to separate some of the interviews etc.

5th January 2015- Went through and looked at all the corrections of the casualty paper Sara had suggested. Looked up some journals which I could possibly publish my paper in so I could then frame by paper accordingly whilst I make the amendments. I did this my writing up a suggested list, googling each of them and noting the impact factors and the rules as my paper is qual some may not take it. Started on draft 2 of the paper.

6th January 2015- NVivo data analysis day. Spend the day going through the interviews from KMAF to see if they can be of any use for a chapter so printed them off and went through looking at priorities and exploring their side of the situation as I did just that with the participants in KMAF. Also want to include the surveys so I must go through and put them all into an excel sheet. Finished version 2 of the casualty paper. Going to give it a day before checking it over before sending it over to Sara, Lol and Michael.

7th January 2015- Went into my engineering office. Sent emails over NVivo in the ERB and to Diane from the MRF. I also found out that I couldn't book onto poster day as it is now fully booked. I also read over the cas paper and sent it to Sara again. I then re-wrote a thesis plan based on the data I have available now. This plan needs to be looked over and put against Sara's for example to see if it is appropriate.

8th January 2015- 10am met up with Jade and Chloe as both are in their first year of their PhD, Grace came along too. I also went into the ERB Office and printed some stuff off so I could continue to look over the KMAF interview transcripts. I also sent Laurence over the 2nd draft of the casualty paper. I then had to have blood tests.

9th January 2015- Came into the ERB office and went through Laurence's comments on the casualty paper and downloaded and started to read more literature to correspond with his comments.

12th January 2015- Had a meeting with a Dr Colin Bannard at 11am, along with Laurence T and Grace as he is the new PGR departmental lead. I emailed Betsy and Simon about the app potential. I compiled a short update sheet for the MRF meeting tomorrow by looking at the results from Qualtrics. Re-disseminated the survey again too. My reading on survival psychology then continued.

13th January 2015- Had an MRF warning and informing sub group meeting in the JCC today where I was asked to give an update to the group about the survey. I also stayed behind for a meeting with Chris Gibson, Paul and Diane and discussed the potential for Betsy's team to work on the app. Helped them with Twitter too.

14th January 2015- Came into the ERB at 9am to meet Dave Brunton and to give him the GoPro cameras he wanted. I also continued to read the articles I have downloaded on survival psychology and I went to meet up with Betsy in the EE buildings over the app work with the MRF. Jamie Box who taught me the NVivo course came to help me install NVivo at 3pm as it won't work on the ERB computer I have. He couldn't do it as it is something wrong with my computer, he thinks but I have it over the road, so it is not a big problem.

15th January 2015- Came into the office at 10am-ish and continued reading up on survival, basic psychology and making notes and then typing them up along with suggested improvements for my paper. I spent the day doing this. In-between this I met up with Sara at 12pm for lunch and Grace and Louise came along too.

16th January 2015- Stayed home today and answered emails (Jamie, Betsy, Diane) and I also continued to read all the articles I have downloaded on Mendeley.

19th January 2015- Came into uni and typed up my survivor psychology notes and started to write them into a cohesive section for the casualty paper. I also tried to address other areas of the casualty paper. I also edited an article template which Vicky Finch from the MRF sent me over, sent it back to her too.

20th January 2015- Emailed Betsy over setting up a meeting. Spoke to the MRF people about meeting with them and responded to Raphael over meeting next week. I then continued to edit the casualty paper in order to make it more psychological for a version 3.

21st January 2015- Had a skype meeting with Laurence who discussed altering the percentages of my supervision, especially as Michael Beer is less involved. I also caught up with him about my paper etc. I then picked Grace up and came into the office where Grace went through the poster guidelines with me. We then took a tour of the posters in the ERB making notes on good factors and bad factors of other posters people had put up. I also emailed Michael and neatened up my PhD plan which I then sent to Laurence. Saw Chloe in the afternoon too for a catch up and to make sure she is getting on okay.

22nd January 2015- Stayed home to work today. Emailed Michael back and started to consider what he has said in response as well as looking up the shanghai conference he has mentioned so I can consider some ideas for the abstract and paper I can submit for it. Looked over the details of his symposium. My meeting with Michael is not until Feb the 3rd but thinks it's best to start preparing now as I am seeing Michael next week too, so I started to tweak the plan etc. I also went through the entire poster stud and created a template for my one. Looked over the abstract sent to me by Grace and still tried to set up a meeting with Betsy and the MRF.

23rd January 2015- Continued to read articles for methods and NHS surveys in order to improve my casualty paper. I also jotted down the possible text I can use for the poster but upon reading the guidelines I emailed Sara (who marked the posters last year) as my work is industrially sensitive and not only that but it may affect publications in the future.

26th January 2015- Came into university today (ERB) to start working on my casualty paper by going through and adding in the quantitative bits as well as including the quotes from the surveys. Made quite a few changes and then met up with Sara to get some images for my poster. Laurence popped his head in too for a quick chat. I filled her in about the % conversation and with Michael B etc. Just need to speak to Michael B now.

27th January 2015- Spent the morning reading over the manuscript for the '*how we make mistakes manuscript*' as I have a meeting about it in the afternoon. I then went to the introduction of the teaching for researcher's (T4R) course before going to Brodie Tower for the meeting. This meeting lasted from 1.30-4pm and included Ian Donald, Michael B, Raphael and Franz Knoll. Printing some of the stuff off for the T4R course to read through.

28th January 2015- Stayed home and worked on the casualty paper again in order to finish draft 3. Finally finished! Going to sit on it for a few days though as I do not want to send it with too many mistakes etc.

29th January 2015- Went through the Teaching for researcher's course manual, did the recommended reading, looked through and did some prep for the assignments. I then went through the casualty paper again and improved the abstract. Sent it over to my brother for him to check before I give it to Lol and Sara.

30th January 2015- Read the whole of the Survival psychology book by John Leach and made some notes as I went along for future reference and for the casualty paper/chapter.

2nd February 2015- Came into uni and emailed Sara about going to the London Campus. Attempted to go through Task 2 and start a draft for the 800-word essay. I put together 3 pages of text which could go on the poster for poster day. Read up on IPA using the Smith book as I am using this method of analysis for the agency interviews. Prepared for my meeting with Michael tomorrow. I also read about a conference which Anne Eyre is running over in the Fire Service College, emailed Sara and Lol regarding it too and they have given their support.

3rd February 2015- Fiddled about with some ideas for the Fire Service Conference and sent the idea to Sara to mull over. Organised my observations for Monday in Sara's lecture. Attended the Teaching for Researchers course session 12-1.30pm. Came into the engineering office and started to go through and code them manually before I use NVivo for the rest. I had a meeting with Michael B at 4pm too which lasted an hour. We went through my thesis plan, discussed the London lectures, percentage changes and supervision.

4th February 2015- Stayed home to work on some bits I had to complete, worked on the revised PhD plan, looking over the work for the Teaching for researchers' course, filling in the fire conference abstract etc. Listened back to my meeting with Michael in order to plan for my Shanghai conference abstract.

5th February 2015- Came into ERB office, went through the casualty paper again and made some changes and then sent it to Grace to look over before I send it back to Laurence and Sara. Went for a coffee with Grace, Chloe and Jade for a catch up on work and PGR things. Sent Chloe some articles I had to help her out and an email address for Jamie Riley. Also emailed Adam Mannis over London and Christos to inform him I will be missing the course next week. I then continued to work on the agency transcripts as they are necessary for the poster and fire conference.

6th February 2015- Stayed at home to work. I finished a draft of the fire conference abstract, so I sent that to Lol and Sara to read over. I completed the PGR Toolbox supervisory meeting records and sent them all over to my supervisors to sign off. I also continued to go through the first stages of my analysis of the agency interviews (3/5 KMAF done).

9th Feb 2015- Observed Sara's MSc lecture on Major Incident management for 3 hours today for part of my T4R course. I then came into the ERB office and Grace went through my casualty paper with me, so I went through and made some changes to it (Discussion, implications section etc.). I also made some additional notes on Sara's lecture.

10th Feb 2015- Took Sara and Michael to the TDA today as there was some MTF training for the responders being run by Dr Dave Sloggit. It lasted the majority of the day and was interesting to observe.

11th Feb 2015- Came into the ERB Office today. Sent an email to Gene from the HART team and went through and amended the references for the casualty paper before sending it over to Sara and Laurence. I typed up the notes I have made on Sara's lecture. Tied up some loose ends (folders/backing up work/deadlines/emails/planning /activity log etc.).

12th Feb 2015- The second day at the TDA was cancelled so I went in to meet Chloe for a coffee & catch up. I then came into the ERB office. I had a reply off Lindsay regarding the primary supervisor situation, so I emailed Michael to finally sort this issue out. Also downloaded all the work from the T4R course I had missed and passed around a supervision booklet which I do not think people have. Made a start on the report about my observation (1/3 assessments).

13th Feb 2015- Had a go of collecting and collating literature for the conference in Shanghai on the MRF data I have. I also received amendments from Sara on the Fire Conference, so I completed the presentation proposal for the conference, taking the amendments into account. I finished the first step of analysis for the transcripts of the agency interviews.

16th Feb 2015- Came into the ERB office to do some work on the T4R course assessment task 1. I read some related journal articles and typed up some notes on them. Typed up some notes for the poster I am creating after having a look at the other posters up in the ERB. Also confirmed details for the meeting next week with the MRF.

17th Feb 2015- Created the first draft of my poster for poster day online although it is only a draft as I am not happy with it. I also went to the T4R lecture which was on supervision.

18th Feb 2015- Came into uni today and met up with Chloe, Jade and Grace. There was a lab meeting (2-3pm) which was being run by Grace. I also went through the changes given by Laurence and Sara for the casualty paper (following a quick conversation about it with Sara) and started making the amendments. I edited the fire conference for the final time too.

19th Feb 2015- Came in early as I had a meeting Laurence today (at 10am) so we spoke about the casualty paper and how I could improve it as well as where to send it on and the authors. Tasks from Laurence were to: edit paper, send to Michael to make changes, send paper to Betsy and Simon, send paper to Dan and then finally back to Laurence so he can pass it onto Paul from JESIP. I was also tasked to look up papers on patient care and neglect as well as GP care and to see where I can send the papers to. So, I started to work on these tasks. I also sent Sara the interview transcripts and a paper for one of her students, Vanessa. I sent Dan Stephens an email with my presentation proposal on for the Fire Service college conference. I made the suggested amendments when returned from Dan.

20th Feb 2015- I emailed Anne Eyre over my proposal and applied for an employment development bursary from the university. To do this I had to also upload a CV so using their website I quickly put one together, digging up all my past research on Broadmoor etc. I continued to go through the articles I had saved as well as making some changes to version 4 of the casualty paper, I made notes on sections which still needed changing.

23rd Feb 2015- Came into the ERB office today. Read and included a few more papers in the casualty paper, version 4 and made all the changes suggested by Laurence and Sara. I added a considerable amount to the discussion too as Grace said that was the weakest part. I did a bit of research on Journals (Journal of Applied Psychology JAP is probably my best bet) and suggested a few titles after looking through previous titles on the JAP database. I then sent it over to Michael Humann to look at and for him to give me some comments on it before I send it to Dan and back to Laurence for him to pass it onto JESIP. Messed about with my poster and spoke to Grace about publications. I then continued to work on my work for the T4R course.

24th Feb 2015- Came into university for the last lecture in the T4R course. I then came over to the engineering office for a change. I received feedback from Michael Humann, so I went through and made the necessary changes. I then had one last check (skim through) before sending it over to Dan to check over. I also received news that my ICASP paper has been accepted so I started to make the changes suggested before submitting my final paper.

25th Feb 2015- Continued to make changes to the KMAF paper, carefully looking at the template which they provide. I then received feedback from Dan on my paper so I made the changes he suggested and then sent it onto Laurence so he could pass over to the JESIP people. I then continued with my T4R assessments, trying to get some other articles for it.

26th Feb 2015- 9.30am meeting with Diane and Paul (MRF) with Betsy & co in the EEE building to discuss the app. This lasted for an hour and a half and was positive overall. They also asked if I would like to own some of the website and add my own input, they would supply the training. I then came over to the ERB office and sent Betsy the findings from the previous focus groups and printed off some of the work that I had to do. I also spoke to Adam regarding the plan for London over the next three weeks, I then had to consult with Chloe and get back to him. I then printed off some work and took it home as I need to see the poster and the KMAF article visually to check they are right. Continued with my T4R assessments.

27th Feb 2015- Stayed at home today to work on some bits for the resilience people (Vicky) and did some reading of journal articles. I also got sent the presentation for the MFRS training on Wednesday, so I worked on that over the evening and weekend, sending it to Michael and Sara.

2nd March 2015- Worked on the slides again for the TDA training on Wednesday.

3rd March 2015- Came into the ERB office early and sent Lesia an email regarding booking the conference. Completed the first draft of the two writing assessment tasks (observation and supervision essay). I want to have these drafts prepared for next week's assessment support session. I also attended tea and cake at 11am as I said I would as part of my PGR role and went to the MSc seminar day as the Dep PCC was in at 2pm-3.30ish and she was good. Cllr Anne O'Byrne her name was.

4th March 2015- Came into my ERB office to do some work and then picked Sara and Michael up outside to go to the TDA as they were doing some training (I included some input for the slides). I did not have any part in the presentation though so just mingled and observed. We were there until approx. 5pm. I emailed Laurence when I got in to let him know that I need to update him on a few things.

5th March 2015- I stayed home and read all the community resilience journal articles I had downloaded, also made notes on them.

6th March 2015- worked from home again due to needing to use NVivo and not wanted to go to the engineering office and my ERB computer will not run NVivo. I downloaded it on a MacBook so read up on what to do and messed about with it I started to code the 5 focus group transcripts. I also typed up the notes I made on community resilience.

9th March 2015-Came into my ERB office and did some work on the community resilience paper I want to write up. In the middle of it I met up with Nikki P for a catch up. I have about 1800 words on the paper so far, mainly the intro and I also highlighted areas which I need to research more.

10th March 2015- Had the assessment support class in the teaching for researcher's course so attended that and I had a think about what presentation I could do for the third task. I continued to work on the resilience paper too, I am about 3800 words into it, updated the references and added bits in the method section.

11th March 2015- Came into my office, sent Anne Eyre my presentation proposal. Continued to streamline what I have already wrote on my resilience paper and added bits in (up to 5000 words

now). I also emailed Raphael about tomorrow and Chloe came to see me to discuss it. Edited the KMAF paper for the final time, converted it into a PDF.

12th March 2015- London at 7am via a mini bus with the engineering students, CDT students and Chloe. Arrived at 1pm met up with Laurence, Sara and Michael H and had a lecture by Professor Jonathan Crego. Stayed overnight in Kings Cross Travel Lodge and got to socialise with all the CDT students and Michael B's other PhD students.

13th March 2015- Still in London with the engineering students, CDT students and Chloe. Heard 2 guest speakers today, Chief Superintendent Brian Dillon from the met who did a scenario with us and Deputy Assistant commissioner Graham Ellis from London Fire Brigade. We left the London campus at 5pm and got home at 11pm! Great trip though.

16th March 2015- Replied to all my emails (Anne, Chloe, Sara etc.), I also looked up the details of the ICASP conference, decided on my preferences and put together a 2-page word doc to send to Lesia. I first checked it with Raphael. I completed my forms for the London expenses and looked up another conference in the Emergency Planning College too (2 days in July in York). I did some research on what I could do for my presentation next week too! Decided on obesity and weight watchers so did some research on that for my lecture next week, wrote up a draft PowerPoint. I also created a to-do-list as I feel I have a lot to do at the minute.

17th March 2015- Tried to work my way through the to-do list I have compiled too! Applied and paid for the EPC conference, asked Michael B if I could have it paid for. I also emailed Lesia the endless list of expenses and details for all the trips etc. Replied to Michael H's student Ioana, caught up with Grace. Emailed Vicky sent off my ICASP amendments. I met up with Ioana to introduce myself and sent her some articles afterwards. I also spent a few hours working through the changes which need making on the KMAF interoperability paper and sent it over to Chloe so that she could send it back to Sara to try and get published. I then tried to think up new ideas for the T4R course lecture as obesity is too serious and not very useful, I have decided on doing something on the impact and origins of the scouse accent.

18th March 2015- I met up with Sara today for lunch and then I went to a lab meeting lecture about callous and unemotional traits (not very good) and then I helped Sara at a post grad event where I answered a lot of prospective students' questions. I also looked over Grace's poster and have her some feedback. Had more feedback from ICASP organisers about the formatting of my paper and I just couldn't figure out what was wrong with it, so I sent it over to Grace, Chloe and Raphael to all see. After receiving feedback (about Microsoft 'styles') I made the changes and sent it back over. Emailed Ioana too.

19th March 2015- Worked on my PowerPoint presentation for Monday (Scouse accent) and the session planner. It's finished now it just needs to be checked and I need to have a run through. I had to find articles and do research as it was not a topic; I know myself well. I emailed the ICASP paper and finally it's all sorted and been accepted.

20th March 2015- Met up with Vicky from the St Helens and the MRF at 10.30am, got her a coffee and went through some of the work I am doing. I then introduced her to Grace and to Chloe and we had a catch up and a good chat about all things related to emergency planning and JESIP etc. She also told us stuff about the Navy as she was once in the Navy and that relates to Chloe's PhD. We then went for lunch and I came back to my ERB office to do some more work. Mainly on updating my March PhD plan and responded to emails, Diane asked about starting up the focus groups again.

23rd March 2015- Finished my T4R assignments to a level which I am happy with over in my engineering office. Emailed the new PGR Admin lady Jennie over my Supervision changes, emailed the finance office in engineering over my registration fees and completed all my own admin on the PGR toolbox. I then did my presentation on the scouse accent in the teaching for researcher's course and came over to my psych office and submitted my work for the course. Tried to phone and email around to book in some focus groups.

24th March 2015- Went into Uni and tried to re-design my poster in time for poster day so I can get ideas on how to improve it. I used Grace's as a template and re-edited my previous design and input the text. I just need to amend the results section now, I think.

25th March 2015- Stayed home today as I had a focus group booked in for the afternoon, which was successful and lasted for longer than 1 hour, nearly two. I also edited my academic CV and sent it off to a man over in Edge Hill University for a little marking job. Started reading through the collaborative decision-making articles I had downloaded.

26th March 2015- Attended poster day today with Chloe and Jade. I saw a lot of students who I have met over the courses I have completed. I stayed for nearly 2 hours to get ideas on my poster. I then went to pass out information sheets and explain my research to an office my cousin used to work in as they said they will take part. Then I prepared for an interview I had over Skype with a professor from Edge Hill University. Unfortunately, I did not get the job as I wasn't experienced enough.

27th March 2015- Came over to the engineering office today as I wanted to finish my poster and try to work on NVivo however, I caught up with admin, emails etc., finished and sent my poster over to Grace and also read through and printed off the paper Sara has sent over so I can work on it over the weekend. I spent late afternoon running another focus group. This did not last if the other one but still provided some useful feedback.

30th March 2014- Following Grace's feedback I worked on amending my poster. Sent it to Chloe for her feedback too. I wrote up the abstract to correspond with the poster as well. I then made amendments to the interoperability paper we are working on for publication. I tracked changed some comments and sent them over to Chloe so she can submit it to Sara for publication. Furthermore, I tracked changed some comments on the policing paper for Sara. I then met up with Ged & his IT colleague at 3pm as he wanted to see the Hydra suite, was there for approx. 2 hours afterwards. I then emailed Laurence to update him.

31st March 2015- Came into Uni and looked into how to submit a journal article as Sara has tasked me with submitting the one, I worked on, the Policing. one. I wrote up a covering letter for it and had to email her as there was a stumbling block with her being the corresponding author. In the middle of this I ran a focus group with Grace, Chloe, Jade and Joanne. It lasted approximately an hour and then afterwards we had a PhD catch up meeting! I then went home and started to transcribe the audio before getting another focus group. Closed the survey down too and printed off the findings.

1st April 2015- Continued to transcribe but also submitted the policing journal article to Law a Human Behaviour as I am classed as the corresponding author. Stayed at home and worked today I finished 1 of the focus group transcriptions.

2nd April 2015- Send some docs to Ged and Joanne. Finished transcribing a second longer focus groups. I also made final changes to my poster and I intend to send it to Dan after the Easter. I also cleared up and organised my paper and electronic folders.

7th April 2015- Came into my ERB office today. I sent Dan a copy of the final poster and he said it is fine. In the office I was reading all the papers on collaborative decision making and was making notes on it for the community resilience paper.

8th April 2015- Stayed home today to finish transcribing, all three of my recent focus groups have been transcribed now. I also completed an up to date participant table. I then edited an interoperability paper and submitted it to cognitions, technology and work. Continued with the NVivo analysis.

10th April 2015- Went into university and continued to read downloaded articles and tried to make sense of the material to try to focus my community resilience paper. Printed some journals off to make notes on as Mendeley kept being slow. Emailed Laurence.

13th April 2015- Amended my April PhD plan and wrote up some final notes on community resilience which I can use for the paper I want to write. Worked on a proper first draft of the resilience MRF paper.

14th April 2015- Came into uni (BT) and continued to work on the paper. Finished a first draft of the lit review for the paper I want to write up. I then went home to work on qualitatively analysing my focus group work by using NVivo as it wouldn't let me open my project on the windows computer as I use a mac at home.

15th April 2015- Did the 9th focus group for the MRF in the morning and as the MRF meeting was cancelled I then transcribed it.

16th April 2015- Came in to the ERB to work on this NVivo MRF project/Situation as now the data will not open anywhere so I may have to start again. Went through the documents on the computer though and made some notes, also added to the draft paper so once the analysis is done the paper should nearly be finished.

17th April 2015-Came over to uni (BT) to work on my project and to try and recover my work- as this failed, I had to spend the whole day doing a new analysis, which helped my familiarity with the data anyway. Printed it off and triple saved it! Due to what I have been reading I also amended my April PhD plan again. Was meant to meet up with Richie Salter (Police Superintendent) but he cancelled as he was busy.

20th April 2015- Came into uni (ERB) and began sifting through my printed notes for the NVivo analysis and started to write it up. I then went to an annual PhD event which was on a career in academia where Dr Eric Robinson ask a panel of 3 people (Prof Caroline Rowland was one of them). It was good advice to hear again. I caught up with Nikki, Chloe and Jade while I was there too. Received an email about a conference which is coming up in Scotland so I emailed Lol and Sara to see if I should apply.

21st April 2015- Due to the response I received from Laurence and Sara I wrote up an extended abstract to apply for the conference in Scotland. I also went on to poster day online and asked 3 questions, which is a requirement for me to do. I also need to answer 3 questions. I also fiddled about with making graphs on NVivo. I created an inter-rater reliability form too.

22nd April 2015- Came into university, answered all my questions on my poster. Caught up with Grace and Chloe, mainly about writing up papers following a chat Chloe had with Laurence. I then continued to work on creating tables etc. for the results section of the MRF paper.

23rd April 2015- Had to go to St. Helens today for some training on website development. A man named Paul Murphy from St Helens council helped me and set me up with my own username etc.

24th April 2015- Had a meeting at 10am in Cedar House which I completed as part of my student rep role. I had to sit through a meeting (FAQSC) which lasted for 2 hours. Louise Almond was there with me too. I then came home and worked on my paper by putting the data from the report into my paper (results section) and by putting it all together on the paper so I can work through and make amendments to make it a complete draft.

27th April 2015- Came into uni and summarised what I have done since the London trip and wrote up what I need to discuss with Laurence and Sara. Emailed Laurence for a meeting, which will be tomorrow. I also met up with Chloe, Grace and Sara collectively to discuss some of the papers we could write with the JESIP data and to inform her of the ideas we have had as a result of our last meeting. I then downloaded some of the data I will need to transcribe the operational meetings. I then went and met back up with Sara for lunch and a catch up about my work and what I have been doing.

28th April 2015- Had a meeting with Laurence at 8am in Nero where I discussed what I had been up to and my plans. We then went through a PhD plan in a lot of detail and discussed some of my ideas. I then came into the office and typed it up from memory before then forwarding it to Sara to

keep her up to date too. Finished a draft of the MRF paper but want to leave it a day before sending it over to Laurence.

29th April 2015- Went back though the MRF paper- now resilience paper and amended the tables etc. I listened through some of the JESIP data (visual and audio) and attempted to transcribe it but there wasn't that much I could do so I sent Sara what I could do. I submitted the casualty communication paper to the Journal of Applied Psychology as Laurence said I could, and I realised that there are no more quotes I could add to it from the footage. Had one last read though of the resilience paper draft, made a few changes and just sent it over to Laurence so I could get some feedback before doing any more work on it. Worked a long day today.

30th April 2015- Started to put together all the odd bits for the MRF presentation so created a skeleton PowerPoint and put all the data together, worked on a report at the same time too. In the afternoon I listened through all the audio to try to decipher what ones where the interviews. I then emailed Michael to receive the interview audio, emailed Grace and sorted out who is doing what.

1st May 2015- came into university and started transcribing the interview audio for strategic but realised that it was all muddled and in the wrong place so re-ordered them, sent it to Michael and carried on working through and transcribing- finished 1 strategic and a tactical so I could send it to Grace as an example.

5th May 2015- Worked yesterday by finishing transcribing the last 2 strategic meetings. Came into university today and found out I got a distinction on the first module of the teaching for researcher's course. I sent some of my work over to Sara. My paper also got rejected from Jap and so I searched for some alternatives where I could publish, I sent my ideas over to Laurence and asked for some recommendations/ideas etc. Had a sort through of folders and dug out some of the UCINET documents and SNA examples for my meeting with Chloe and Grace on Thursday.

6th May 2015- Today I downloaded some articles to read from the journal Laurence suggested. I also went through the transcripts for the focus groups and started to put together some suggestions for the MRF group meeting next week. I answered emails and put together a plan and some work for my PGR Review which is the 1st of June 2015.

7th May 2015- Into University today, emailed Diane and Paul to ask what exactly they want me to do next week. I then met up with Chloe and Grace to discuss some of the work we can do on the JESIP papers. I went through how to do a Social Network analysis and how I did it for my masters. We discussed a possible coding dictionary and I made notes which I typed up later and sent over to them both. We agreed on a work load etc. as suggested by Laurence. I left early to vote in the election! Continued to work on the MRF project later as Paul wants an overview of all the web, survey and app!

8th May 2015- Again continued work on the MRF presentation for next week so now I have a final draft of a PowerPoint and of the report. I just need to edit the checklist. Started to make notes on articles I had downloaded.

11th May 2015- Came into the ERB early and responded to emails over the Go Pro's which Dave Brunton has. I then went over my report, PowerPoint and edited the checklist in preparation for Thursday's presentation. Continued to read through the Psych trauma articles I had downloaded, made notes on them, edited my paper and submitted it to an APA journal- Psychological Trauma however I doubt it will be successful upon further inspection of the journal itself and its articles.

12th May 2015- Came into the ERB and from 10am worked with Chloe by coding the transcripts. As it was the first transcript, we had coded we worked through and amended the Coding dictionary as we worked, and the coding spreadsheet Chloe created. Printed these off for future work and put them in a folder. Started to create a PowerPoint for the ICASP conference and for a PhD workshop which I am presenting at in a month. Reminded Laurence to read over the MRF paper, which he did, and he sent back over to me. I then amended my abstract for the Shanghai conference and sent it over to Sara.

13th May 2015- Double checked and printed all documents for tomorrow. Started to read and make notes on some articles (e.g. one Chloe sent and the interaction ones). Typed them up too into a document for future use. Put together notes for how to do a CIS and sent them to Sara along with the rejection from Law and Human Behaviour about the accountability paper.

14th May 2015- Was at the JCC for the 6-month review on the website. Here I presented all the findings from the focus groups about the app, website and the survey. I presented in front of Chris Gibson (Chief inspector), Lorraine Bradley (police), Diane, Paul, Vicky and Vicky's boss Karen. It went well! They want me to present in front of the next big MRF meeting they said.

15th May 2015- Tabulated the police accountability feedback under headings (abstract, methodology) which ended up being 5 pages long and submitted the abstract to the Shanghai conference.

18th May 2015- Sent Sara the tabulated feedback. Went on and updated my record on Liverpool Life. Asked Laurence's advice on which work I should send to my PGR reviewers. Put together a presentation for the ICASP presentation and the PhD workshop. Looked for more articles so I could expand and attempt to get published the ICASP paper, thought about some ideas for it.

19th May 2015- I received an email yesterday evening to say my proposal for the fire service college had been accepted and so I started work on this by going back through the debrief transcript of the KMAF warrior exercise. I also looked for some funding for the trip, before I ask Michael about it. I then watched some Forensic Psychology programme called 'Detectives' as I haven't kept up to date with other areas of psychology and a friend from LJMU recommended I watch it.

20th May 2015- Was at the JCC for a presentation by a man named Chris Appleton to the warning and informing group who was talking about UMS messaging and how it could be good for community messaging and deploying emergency staff. There was then an MRF meeting where I had to give some updates followed by a smaller meeting where we discussed the priorities for improving the website based on my feedback. I emailed Laurence later and I sent over my work for the PGR review I have coming up.

21st May 2015- Came in to university and sent some emails to find out how much I have left in my engineering fund and to find out more details for the Canada trip. I then emailed Michael to see if I can pay for the fire conference using the £1500, I have left- he said yes! I then tried to look at booking it and filling out the necessary forms. Cognition, Technology and work rejected the interoperability paper we submitted so I forwarded that reply on. I emailed Betsy to ask for dates so we could set up another meeting in the JCC over the app. I sent Diane over the requested sheets (e.g. checklist with priorities on). I went through and answered emails and tried to make a list of things to do as I have a lot coming up. I then had a meeting with Chloe and Grace to catch up but also to discuss the SNA JESIP paper we are working on.

26th May 2015- Had to pick up a new student card and then came into the ERB office. I went through and responded to emails, printed off stuff which I needed to thanks to having a student card again. I emailed Sara and went through the additional comments she had made on the reviewer comments for the accountability paper. I then finished extracting quotes for the KMAF impact paper I am aiming to complete.

27th May 2015- Worked from home today. I went through and searched for journals which could be appropriate for the interoperability paper to be published in. I compiled a list and sent it over to Sara and Chloe. I then went through a paper version of the accountability paper and wrote on some changes. I had a little break and went back through and made the track changes to it. I will double check on my PC tomorrow and will send it over to Sara.

28th May 2015- Came into the ERB office today and mulled over the changes I had made to the accountability paper, input some comments in the table I created, and I then sent it back to Sara. I made some changes to the KMAF PowerPoint and tried to prepare for my PGR Review by typing up what I have done in the past year. Met up with Chloe to discuss the interoperability paper etc. I

created a paper submission schedule and emailed Laurence a few questions I have as he is going away next week. I then looked through for my ethics and couldn't find it, so I emailed Sara to send me them. Printed some work off to take home too.

29th May 2015- Prepared for my PGR review next week by reading through what I have done. I did some reading and organising too. Emailed Sara and Laurence back. Searched for some methods and tips on thesis plans, publishing conference papers and methods for my MRF data collection... Not the most productive day.

1st June 2015- Came into university for my PGR Review which was at 9am, this went swimmingly well as everything is on target and they were happy with the plan and paper I sent them. I also did not have any issues to bring up, so it was over within 10 minutes. I emailed Lol and Sara to update them. I was also going back over some of the notes I made on Friday and was trying to search for ways in which I could add some quantitative research into my thesis. I then met up with Chloe and Sara to discuss the papers we are putting together and to have a general catch up. Looked for some articles on MRF's perception of panic to give me a better idea of what study I could do. Searched for and added some papers to the drop box folder. Completed my APR online (Annual Progress Report).

2nd June 2015- Came into university today, went along to the PGR tea and cake and discussed the PGR Conference coming up. People were also talking about jobs, so I had a look at jobs which are available now. Emailed to get exemption from the PGR conference- successful! I then searched for more articles and imported them all to Mendeley ready to read and make notes on. I then had a meeting with Grace and Laurence to organise the PGR conference which is what we must do as part of our role as PGR Reps, we designed a survey on Qualtrics to send to the students.

3rd June 2015- Stayed home today as my wisdom teeth are coming through and it is hurting! Read through and made notes on some of the articles I had downloaded and imported to Mendeley. Replied to emails regarding the PGR Conference we are trying to organise.

4th June 2015- Came into my ERB office today and added on to my plan, searching for some literature and books alongside my edits. Put together a list of books to get from the library and put more articles in Mendeley which I must read. I then went through and started reading some statistics articles to see how I could extend my ICASP paper, had a dilemma too as it seems I should have used a Wilcoxon paired test instead of a dependent paired samples t-test for my analysis on the ICASP paper. Spoke to Grace about it and searched for my original data so I can start again for the paper I am intending to write up. Carried out a Wilcoxon test anyway. Looked up if it is worth doing any Chi-squared tests. Responded to emails about helping move the hydra suite next week as well as emails over setting up a meeting with the Betsy at the JCC.

5th June 2015- Stayed home to read, I have so much to learn!!! Made notes in Mendeley and on paper to be typed up. Thought about editing my plan a little bit more. Put together a list of books which may benefit me and seen if they are available in the library. Also compiled a list of questions which I must ask Laurence when he is back. He emailed me about a possible journal to submit to in the evening.

8th June 2014- Started the morning by going to the library and collected the books that I wanted to. I had a check through them in the library to make sure they are what I thought they were. I then came into university, caught up with this diary, emailed Vicky to ask her about Wednesday's training day and continued to read through the Journal articles in Mendeley. Typed up some possible ideas to send to Laurence and Sara for the special issue journal he sent over.

9th June 2015- Came into university today. Answered emails to Chris, Paul, Betsy & Vicky over going to the JCC both Wednesday and Friday this week. I then had a meeting at 10am in the hydra suite to help move equipment as it is going to the TDA.

10th June 2015- Went to the JCC with Chloe today for the Ex. Lawman afternoon session today, took Chloe along as well. It was good we heard Paul Speers, Kevin Frost (Police, Firearms) and

local councils (Jamie Riley and Vicky) all do presentations on MTFFA training. I caught up with a military man named Ray Carolin too as he wanted some help putting some PowerPoints together for a military enterprise day.

11th June 2015- Came into Uni today to catch up with some emails and to do some odd bits that I had missed. Caught up with Michael H who came in. Attempted to read the remainder of the articles I had downloaded but unfortunately, I couldn't hear myself think with the noise of drilling in the ERB! Resorted to organising and making to do lists instead! Sara also popped in the office so spoke to her too. Sorted my casual worker form out with Maria Grimes as I am being paid for working on Tuesday and moving stuff.

12th June 2015- Meeting at the JCC over the app with Paul Speers, Betsy, her student Tvestan and another member of staff Terry Payne. I then went home after wards and as my head is full of all kinds of studies and research etc. I decided to do a one step at a time approach, and I am now focusing on the revamp of the KMAF paper, going onto the MRF agency design of the paper and will then look into others. Looked through the books I had taken from the library to support this- especially the stat ones as I may be able to include more stats in the KMAF paper.

15th June 2015- Sent an email to see if I am helping Sara Tuesday with the MFRS training. I went through my presentation, sent Betsy an email with information for the focus groups. Sent Vicky an email to elaborate on the email Paul sent. I haven't heard back from Laurence so started to look for some Leadership and critical thinking docs and ideas to forward to Ray (Military).

16th June 2015- PhD Workshop day today from 9am until lunch time. My presentation was 2nd and I think I did well. There were a few slides I could change for the ICASP presentation but overall, I think it flowed well, lasted the full 20 minutes and I got loads of questions afterwards were people showed their interest in my research. Sara and Michael B also watched, and Sara give me positive comments afterwards. Me, Sara and Michael H then headed to the TDA were we met up with a firefighter named Gordon Smith, had lunch and as part of their incident command course they delivered an afternoon of material where I got to present about 10 slides! I presented on the public perception and went through some of my findings in the live exercises.

17th June 2015- Came into uni, emailed over Betsy and Vicky regarding developing the app. Sent Chloe some papers on content analysis. Continued to put some slides together for Ray in the military. Met up with Chloe, Jade, Victoria, Grace and Joanne for a coffee before the Lab meeting which lasted from 2-4pm. We chatted about submitting papers, conferences and just general PhD stuff as it was just us PhD students. Finished the enterprise presentation and sent it to Ray.

18th June 2015- Went into uni, got my computer looked at so moved folders etc., I completed some paper work and odd bits like sorting folders and met Chloe and to start coding the Joint Endeavour transcripts but we couldn't do it as the transcripts another MSc done were incorrect and needed drastically changing- this took up the rest of the day and evening! Put the amended versions into our drop box folder and will tell Sara.

19th June 2015- Stayed home today as my computer is being fixed! Spent the day writing up my Wilcoxon findings and trying to put together the impact and influence paper. I also had to do some messing about with the PGR conference list to see who needs chasing up on Monday. Put all the data into an Excel sheet.

22th June 2015- Came into uni and my computer was fixed! I then double checked the list and updated it with people who submitted late. I emailed Grace and Laurence to ask about the PGR Conference as we have people who have not submitted their abstract. I again amended the transcripts as I had to re-download Dropbox and Mendeley etc. I amended my ICASP presentation based on last week and then I carried on with my Impact and Influence paper by re-doing the Wilcoxon test on SPSS as I lost my previous one when my computer got fixed.

23rd June 2015- Stayed home and read up on methods and statistical methods which I could possibly use. Updated the PGR Conference list and responded to emails. I also typed up my qualitative analysis notes for the impact and influence paper.

24th June 2015- Came in to the ERB to find broken blinds! Tried to rectify it but I can not as I'm not a member of staff! Grr...anyway I carried on writing up my impact paper and I am close to finishing a first draft of it, I think. Also caught up with Grace. Printed off what I had done on the impact paper and emailed Laurence my idea for the vignette study.

25th June 2015- Came into ERB and worked on making amendments to the community resilience paper, again I left the bits on that still I still need to change. In the afternoon me, Grace and Laurence went to see Colin Bannard to work on organising the conference

26th June 2015- Heard back from Laurence, I'm seeing him Monday, so I made a list of things to update him on and what I need to ask him. Continued with re-drafting the community resilience paper and printed off what I have done so I can clearly see where I can improve it.

29th June 2015- Came in early today as I was meant to be coding with Chloe from 9am, seeing Laurence at some point and Vicky and Diane were meant to be coming to the uni for a catch up. It turns out Vicky cancelled, and Chloe did not show up, so I came in, responded to Colin's request and other student's emails to move some people around on the conference. I also typed up notes out of books I had borrowed as I must return them and made some other paper notes from papers I had read and merged all my previous notes together onto one document. I then had an email from Michael with a data map, so I asked for the transcribed interviews. I got these and realised that the labelling was all wrong! So, it took me a while to figure out the labelling system used so I could re-label them! I was then emailing Grace and Chloe to sort out the problems we are having with this data.

30th June 2015- Came into uni today and continued to go through and make amendments to the transcripts. I had to add in minute timers and change some of the words the MSc student has used as upon one listen to the first interview there was a lot wrong with it. I then done some admin and tidying up and organising of folders etc. and Laurence came in, so I caught up with him, asking him questions about my list. I then went with Grace and Chloe for a coffee and catch up.

1st July 2015- Stayed at home to work today by going through the agency transcripts. I also track changed one of Ioana transcripts so she could make changes to the rest of them. I updated Michael and he rang to discuss this. Laurence completed the academic report for the year which was all fine so I can progress onto my last year. Went through my ICASP presentation and what amendments I need to make to my other drafts of papers. I also enquired about submitting my MRF paper to publish with the Shanghai conference organisers.

2nd July 2015- Finished editing the operational transcripts. Continued to read and make notes on methods so that I could properly plan the vignette study that I want to do as Laurence's advice was to have it like a proper quantitative study with IVs and DVs so made some rough plans.

3rd July 2015- Started reading and making notes, also continued to make some changes to the resilience paper. Not too much left now to change, I will send it to Sara when she is back and has some more time as I know she's away when I am.

6th July 2015- My abstract was accepted for the conference in Shanghai next year. Met up with Laurence again, first with Grace and Chloe collectively to discuss the JESIP data and what papers we can get from it and then on my own. I did not really have much to say to him though as I feel okay, I sort of know what I need to do. I then came home as it was Kiesha's 18th Birthday. Sara also emailed me.

7th July 2015- I worked on downloading and organising the journal articles I need to read and putting them all into one folder and into Mendeley so I can share them with Grace and Chloe but also so I can read when I go to Vancouver on Friday. I also emailed Raphael to check he is getting the same flight as me and Sara.

8th July 2015- Went into University and met up with Sara at 1pm for a pre-Vancouver catch up! In the morning I typed up some of the notes I had made and continued to read the articles I had downloaded.

9th July 2015- Stayed home to pack! I also prepared my presentation and checked for any last-minute changes I would need to make.

10th July 2015- Left at 9am for my flight to Vancouver!

13th July 2015-17th July 2015 in Vancouver, Canada for my presentation in the 12th International Conference on Applications of Statistics and Probability, Vancouver, Canada, July 12- 15, 2015. Went with a few of the engineering students and Sara

20th July 2015- I responded to the previous week of emails, scanned and sent over my expense receipts too. I also had to send copies to Sara and Raphael.

21st July 2015- Went into university in the morning and I had an all-day thesis writing course over in the CPD Suite as part of the summer school that is being put on. It was run by Dr Richard Hinchcliffe. It was a little bit useful as it just motivated me to write but it did not necessarily give me tips on how to write. Just to include some argument.

22nd July 2015- EPC Conference on Interoperability in York. Went with Chloe & Sara. Met some fascinating people such as Lucy Easthope. Ged and Kev from MFRS were also there so it was a good chance to network.

23rd July 2015- EPC Conference on Interoperability in York. Went with Chloe & Sara. I did not get home until late at night. Had a good few discussions with Chloe while I was there about working on JESIP papers, so I started to put an email together to send Laurence.

24th July 2015- Had a Viva Survivor course over in the CPD Suite in the morning. This was good and made me want to prepare. It was run by somebody called Dr Nathan Ryder. We also got a free copy of his book, so I downloaded that and read that. I also typed up the notes I made and put all the documents I downloaded for this into a folder in order to be more prepared! It could possibly be this time next year that I am ready for my Viva, I hope so anyway. Emailed Laurence and got some feedback about paper ideas.

27th July 2015- Came into University today and had a scout for jobs. I applied to be an associate tutor in Edge Hill University as I did not get the job last time, but the extra money and experience will do me good. I also sorted through all the paper work on my desk and downloaded all the presentations from the conference last week. I sent some emails to people I needed to (e.g. Lucy Easthope etc.). I then started watching through the GoPro videos which Michael sent over and I made some notes to assist with the organisation of the data.

28th July 2015- Came into university today and sent some emails over to the MRF and Betsy to sort things out between them. I finished editing my paper to a degree- the community resilience one so I sent that over to Sara to look at. I also had to send her the JESIP interviews. I then continued to watch the Go Pro videos and created a table in word to make notes in. I also took part in a visual perception study for a girl named Beth Collier.

29th July 2015- I took part in another study at 11am (to be continued tomorrow) at the university. Went through the operational interviews and continued with my impact and influence paper and designing a study for the MRF chapter of my paper. Got paid by the University for the work I did with hydra today too.

30th July 2015- Sent over the rest of the operational interviews which I have now gone through and continued the rest of the study for a student named Stefano.

31st July 2015- Finished watching the GoPro videos so I send the tables over to Michael and Sara.

17th August 2015- Came into university for my first day back after 2 weeks off. I had a meeting at 10am with Sara, Chloe and Grace to catch up with them and to discuss who is doing what on the

JESIP papers. This lasted nearly 2 hours and now we all have tight deadlines. We also discussed another possible opportunity with an exercise happening next year which Michael is taking lead on. Came into my office and continued to answer the many emails which have built up since I have been away. I also continued to go through the impact paper. Sara emailed me over my community resilience paper with feedback on. I downloaded the paper template for the paper I need to submit to the Shanghai conference (was going to be the community resilience one) and they only want 6 pages when I am currently up to 23! Ahh emailed Sara to ask for her advice.

18th August 2015- Came into the ERB early today with the aim of finishing of the impact and influence paper and sending it to Lol and Sara. I also continued to respond to emails and sent one to Michael H. Printed off all the JESIP papers I will need so I can start on the analysis of that soon too. Finished the 1st rough draft! Woo sent it to Sara and Laurence, so I am not looking forward to the response as it does need work to be published. Read over Sara's introduction to a JESIP paper we're putting together.

19th August 2015- Had positive feedback from Laurence and an invitation to the Alcyin course for interviewing. I came into uni and read through the TMM intro what Sara sent and made some edits, I then started my analysis task of going through the Telegram and transcripts. Flagged up some inaccuracies to Sara and then emailed her explaining how challenging the task is as the table I put together wasn't very good because in hindsight-neither is Telegram for analysis. Also went through some textbooks that I picked up from the library, cognitive and social psychology ones.

20th August 2015- went into the ERB to pick up the books I had finished with and returned them into the library. I then came over to the Brodie Tower office to see if I had missed anything and to catch up with people over here. I completed all my expense forms and sent them to Lesia too as the fire conference is soon and I had tickets from York which I needed to claim for. Read some papers and downloaded articles for the JESIP method paper.

21st August 2015- Continued to read through some journal articles. I also sent Sara a poster, made a few drafts for other ones and googled ideas for a conference coming up in September in which we are helping at. We have a meeting on Monday about it with Sara. I also arranged to speak to Ged as I had a query about hydra and how it should progress etc. Sent some emails afterwards.

24th August 2015- Went into uni today to sort out my paperwork and my desk and answered emails. I then met up with Chloe to put our ideas together for the public engagement day poster. I met up with Jade for a quick catch up and then met up with Sara and Chloe to discuss the public engagement day and what tasks we are going to do. I then made some changes to the poster, emailed Diane to ask her to add this onto the meeting as there is a chance the engagement day could advertise the Merseyside prepared app. Started out on one of the tasks and asked Sara to send me to ICMM slides for me to go over.

25th August 2015- Stayed at home today as I had a meeting at the JCC in the afternoon so just continued with the task I had to do for the public engagement day and prepared for the presentation I had in the JCC. I also planned to ask them about collecting more data from them and to ask if they wanted to participate in any way in the public engagement day Sara & Co have organised. It went well and was a long meeting.

26th August 2015- Did some reading up on the journal which I intend to send the community resilience paper to. Again, I answered some emails and looked through some slides that Sara had sent me over. I wanted to make changes on the papers and look at submitting them, but I emailed Laurence first to see where to, he made a few suggestions, but I need to speak to him first about hem before I send them anywhere. Feeling a bit stressed at the minute.

27th August 2015- Came into the ERB today and started to make a to-do list. Not sure what work is best to start off first or what works should be done first and where to go with things at the minute. Had a meeting with Laurence at 10am and felt a lot better afterwards. He talked me through the papers and said although they are good chapters; I need to combine them to make them good papers. We caught up on other things too and then Sara came to see me. I started to prepare for the

multi-study paper by collating all physical paper and folders and reading through some different methods which I can possibly use.

28th August 2015- Stayed home today and worked on reducing the community resilience paper from 22 to a 6 pager for the Shanghai Conference. I managed to amend the abstract and half the paper to 11.

1st September 2015- Answered emails. I put the Shanghai paper into a nearly perfect format which they have asked for and I reduced it by another page and a half. I stayed home to work so I will have another look tomorrow when I am in uni. I then went through and tried to finish the TMM method which Sara has asked me to do but I had too many questions and so I sent over what I had done and stopped until I see Grace and Chloe once they have started coding. I then continued to read papers for the JEP multi-study paper I want to do.

2nd September 2015- Came into uni as I wanted to see what we had already for the Macmillan Coffee Morning. I emailed Laurence T yesterday about it and went to see what was there today. Printed off the Shanghai paper to go through, read the comments I got back from my declined Psychological Trauma paper and read through what Sara has asked us to do for the JESIP Methods paper.

3rd September 2015- Came into university and continued with trying to reduce my Shanghai paper to 6 pages which after a long day I succeeded. I also went to see Maria as we were discussing doing a room swap so we could share a room with Chloe, but it is unlikely to happen. We decided to have a tidy up and rearrange of our rooms though. I then continued with the reading through of papers for the JESIP method paper.

4th September 2015- After receiving emails from Sara about the KMAF debrief presentation next week I went through and edited my slides to include all the perception scores etc. I sent them over to Sara. I then continued to make extensive notes of all the journal articles I have downloaded for the JESIP methods paper.

7th September 2015- Finished reading all the articles I had put into Mendeley, so I types up the notes and reorganised them. I now just must slot them into the places which Sara has left out for me in the draft of the methods paper. I stayed at home to do this.

8th September 2015- TAROS public engagement day. I got to university before 8am so me and Chloe could collect all the stuff and head over. We set up after a few issues with equipment (or lack of) and started from 9am until around 3-4pm. Not many people came over as it was more about robots and autonomous systems and so we stood out and I think it looked boring in comparison to everyone else's stand. Not a useful day really. Diane and Paul (MRF) came over though so it was good to catch up with them.

9th September 2015- TAROS industry day. After yesterday I decided it would be best if I only go for a few hours which I did in the afternoon. Came into the ERB in the morning and read Chloe's chapter and then I also continued to work on the methods paper. Briefly saw Laurence and Sara and went over to the TAROs industry day to see a few presentations but it looked the same as yesterday really.

10th September 2015- Came into university all morning and worked on the JESIP method paper. I have finished what I think is enough for my contribution so now I've just got to print it, proof read it and send it over to everyone later. I then went home and prepared for tomorrows presentation.

11th September 2015- Today Sara and I had the KMAF Warrior debrief so we left at 8.30am and got to the TDA for 9am. It was a command seminar we presented at, so it was a busy lecture theatre of high-ranking firefighters and it went well. I ran through the public engagement bit and the mass decontamination slides and Sara did the rest. It was interactive. We then left before midday and went to the JCC where we had a meeting with Paul, Vicky, Betsy & Co to discuss the app and to see a preview of the work that Tzvetan had been doing over the summer. Following the meeting

we went to see a firefighter named Steve Hancock who we were getting go Pros off, but we also had a cup of tea and a catch up with him.

14th September 2015- Came into the ERB office and rearranged my desk so I am now in the corner and can see the door! I cleaned my desk, sorted out my drawers and brought in my coffee machine to make it a bit nicer. I also answered emails following up from my busy day out the office Friday. Started to prepare for the JEP paper by reading articles which explain how to do an SSA or MDS, also had a few ideas along the way.

15th September 2015- Had a Skype meeting with Michael H at 10.30am where we discussed the TAROS event last week and Ex. Unified Response. I explained how I would like to look at individual differences in perception and preferences for risk communication during an incident. By doing this I would like to collect some pre and post measure surveys (via Qualtrics) and by doing targeted interviews on the day. This would mean giving people roles and forewarning them I would like to interview them about their experiences afterwards. I then came in, went to see Maria to thank her, got some supplies from her too for the Macmillan Coffee Morning. I then emailed back Paul Speers who emailed and had to create a research fish account as I'm funded by a research council. Continued to read about SSAs.

16th September 2015- Picked up some books from the library today on psychological research methods such as factor analysis. I also got books on perception and communication research and individual differences. I did this in order to try to better understand what to collect next and what to do with the data I have. I stayed home and read through them.

17th September 2015- Came into university today and brought the books back in, again I looked through my thesis plans and I tried to make some sense of next steps by still reading on SSAs etc. I then left in the afternoon to see Vicky in St Helens to start creating some game content for the Merseyside prepared app. However, we did not get much done as we couldn't get my pen drive to work. We just discussed next steps.

18th September 2015- Came in and finished what we discussed in the meeting yesterday afternoon (app game content) and then sent the work over to Vicky. I then made notes on what I have been reading, amended my plans and emailed Laurence over to ask for help on the SSA saga I am having. I sent over my plans to him, but I am hoping to have a meeting with him on Monday morning. I also went through how I would do a regression as that is on my plan, but I am not exactly sure how I would do one.

21st September 2015- Came into university early today as I have a meeting with Laurence. I made some bullet points about what I wanted to discuss with him. My meeting with Laurence went well; I got a lot of clarity on what I am doing and what my thesis plan should look like. I then re-worded my thesis plan and put in a potential idea which would involve me working alongside MFRS, so I'll find out later what Dan S says about it. I met up with Dan when he came to the uni and spoke to him in Laurence's office, I just must wait for his call now. I also went through and made some notes on the ICMM slides.

22nd September 2015- Came into the ERB again today. I got a new contact off Dan yesterday, so I emailed her over and emailed Sara to ask for the Joint Endeavour ethics form. Saw Laurence briefly and read a book on individual differences and factor analysis. Went to the library and got more books, including the one I think Laurence was telling me about- called 'unthinkable'. Sent Tzvetan & Betsy emails over the app game content.

23rd September 2015- Came into uni today and Becky Coleman had sent an email to ask about doing some lecturing work, so I came in to speak to Grace about it. I also had a phone meeting with Laurence about possibly doing some further work with victims in a new project. For the project I went and gathered some books from the library and started to read 'unthinkable'. I also printed off the ethics forms and started to go through them, as I have another meeting with a lady from MFRS, Debbie Appleton on Friday afternoon. Finished the information, consent and debrief

form and a rough interview schedule and sent them to Grace to check over. Also asked Laurence about what interview technique I should use.

24th September 2015- Continued to read the books I have on terrorism and surviving disasters. I made notes on them as I read as I can use some of it for my introduction in my thesis. I also prepared for the MFRS presentation, part of their incident command course which is tomorrow. I also picked up the coffee pods for the Macmillan Coffee Morning.

25th September 2015- Went in extra early as I had to print off my ethics form in preparation for my meeting with Debbie in the JCC in the afternoon. In the morning I went with Sara to the TDA to present at the Incident Command Seminar. I then went to the meeting with Debbie in the afternoon. Both went well.

28th September 2015- I sent Laurence an email about ethics (with a rough draft of a letter to send to potential people), I sent over the poster for the Macmillan coffee morning, a reminder email to Chris and an email to Grace all to advertise it. I also had a meeting at 10.30am in St Helens so I went to that and then went back into university in the afternoon to put some posters up for the coffee morning. I also answered emails to Chloe etc. regarding the JESIP methods paper, I caught up with Grace about it too.

29th September 2015- I started by going through the ethics form and attachments with the feedback Laurence had given me, along with the bits and pieces given to me by Debbie. I amended all the forms and then sent them to Debbie to check before sending them back to Laurence.

30th September 2015- Came into uni early today and sent some emails (engineering students) and to Steve Gadsdon following last week. I then attended the CDT Annual Showcase Conference over in the Harrison Hughes building with Chloe and Grace. Michael B was attending so I thought it would be a good place for a catch up. I also got to see my new office.

1st October 2015- Stayed at home today and answered emails, continued to read my book and make notes, emailed around the Macmillan Coffee morning poster to invite some people, I started to read up on learning theories for the lecture I am doing next week.

2nd October 2015- Went into uni today, the ERB and responded to emails, sorted out my computer and books etc., then I went to Brodie Tower and packed up my old office to move to my new office building in the Harrison Hughes. Continued to fiddle about with lecture slides and making notes on the lecture I am doing.

5th October 2015- Over the weekend I finished reading and making hand written notes on the book 'the unthinkable' by Amanda Ripley and doing research on some of the people she mentioned. I watched a few programmes with John Leach on and added some people on twitter too. Today though I came into the ERB and amended my lecture slides for the lecture I am doing on Wednesday and I also put together some slides for the lab meeting next week.

6th October 2015- Today I wrote a data collection plan for public engagement for exercise UR, I put together a debrief form for Vicky in Exercise Resolute and I finished going through and amending the slides for my lecture tomorrow. I also went into uni for a meeting with Sara about what is happening with the app. She also keeps me up to date with a grant they are putting in so they're will be a research post at the end of it.

7th October 2015- Today I had an early lecture (my first ever solo lecture!). It was to psychiatry students who are doing a masters and it was about learning theory. The lecture in total, with breaks, was 3 hours. It went well I thought. This was in the Waterhouse building. I then headed back to the ERB and attended an interesting and powerful talk which was a part of a conference for mental health awareness named 'students go mental'. It was good. I then went back to my office and started to put together some quotes from the interviews for my fire conference presentation. I also went to see Maria and Mark to get the canisters and make sure the tables will be set up on Friday.

8th October 2015- Went to Costco again today and picked up more cakes and breakfast items for tomorrow. I also baked some cakes. I did not go into the office today so I could try to power through some work. I did not manage to do as much as I would have liked but did finish going through the agency interviews to get some quotes of them for the fire service conference presentation I am putting together.

9th October 2015- Macmillan Coffee Morning in the ERB Foyer! After weeks of preparation!!! Anyway...it wasn't as good as last year but it was quite a success as we raised just under £114. We started preparing from 7.45 and packed up at 1.45. I then paid in the money in the bank and came home where I sent emails to Betsy, Diane & co to re-arrange meetings. Laurence also emailed me to inform me about the Alcyone course which is taking place in January.

12th October 2015- Today I booked myself onto some of this year's PGR refresher and development courses. Some start soon and some next year. I continued to put together my slides for the fire conference next year and I picked up some more survival books as the last one (unthinkable) helped to clarify some ideas I had. I met up with Richie Salter, a police officer who was in my masters' class and I also attended the induction for the teaching for researcher's (T4R) course module 2 and downloaded and read all the required material, as well as attaining the module handbook for the master's course from Sara for the tasks at the end of the module.

13th October 2015- Came into university today and responded to an email from Michael B about the papers I have sent him. He has given some advice which I will work on in the future for putting together a publication. I filled out an application form for the fire service excellence award which will be awarded in the conference next month and I also made some changes to the APSSRA conference paper using their paper template and basing it on feedback I have received from Grace & Chloe. I also completed a draft of my slides for the fire conference.

14th October 2015- Looked through a document sent by Sara about the FRS training course, I checked and submitted the APSSRA paper and my application for the fire excellence award. I emailed Grace & Chloe about working on the methods paper which Sara has sent back and I presented at the lab meeting which was about attending conferences. I also stayed behind afterwards and caught up with some of the new students.

15th October 2015- Went into university today and worked through the feedback given by Sara on the methods paper. I added a couple of hundred words, tracked changed all the phrases and checked up on some terminology by asking Dan Stephens. I then went to a PGR refresher course and day as they are changing the way things are run now so it is now the Liverpool Doctoral College. I then continued to work on the paper I am submitting.

16th October 2015- I finally picked back up the exercise unified response survey and completed a draft. I then started to investigate how I would statistically analyse it so looked up papers which described structural equation modelling, factor analysis etc.

19th October 2015- Came into university today and continued to work through putting together a draft for the Ex UR survey and read some books structural equation modelling and factor analysis so I would be able to analyse the survey. I found it quite complex a method so emailed around and got myself booked onto a course which teaches it, it starts in November. I also went along to the first taught T4R session on marking. Emailed Lol to ask for an update on the victims of terrorism project but there's no updates yet.

20th October 2015- Came into the ERB today and worked on editing the community resilience paper and researching the journal suggested by Michael. It's the ASCE Journal of risk and uncertainty which is new. I researched and downloaded papers on 2 case studies, 9/11 where people were not prepared and Fukushima where in principle people should have been more prepared. Started to make notes on these. I also started a PGR online careers development portfolio course.

21st October 2015- Went to see Jo Henderson to fill in a worker form so I can be paid for the work I am done teaching learning theory. I then went and set up my new office over in the Chadwick

building and as they were doing works there I left and went to the ERB where I continued to read and answer emails and sort out some admin (organise files and my filing cabinet). Sent Laurence a copy of the Ex UR surveys (with my tracked comments) too in order to get feedback. I also attended a psychological series seminar on schizophrenia in India with Sara.

22nd October 2015- I got some feedback from Laurence so I went through this as well as going through some of the articles I have read and made some notes on them. I also went through the methods paper which Grace sent back and emailed to meet them on Monday after the T4R lecture.

23rd October 2015- I continued to read, edit survey and make changes to the resilience paper.

26th October 2015- Came into Uni and worked on reading the documents sent by Michael, the survey which Laurence has given feedback on, answered emails and read. Read the stuff for the T4R lecture and attended this too. I then spent by afternoon with Chloe and Grace to discuss the paper and other bits.

27th October 2015- Came into Uni today and emailed Vicky, worked on my thesis plan, went through my fire conference slides, printed some stuff off and emailed MFRS over the interview project. Downloaded Laurence's thesis too as well as a 1920 one from Samuel Prince in order to read and prepare my own. I also continued to work on my survey which I then sent to Laurence and Michael.

28th October 2015- Laurence emailed to invite me to the Alcyone course in January which is good. I stayed at home today and worked on putting some notes together for my introduction. I also received an email from Sara about some marking work in Southampton University, so I amended my CV, asked Sara and Michael to be referees and I sent a covering email over to apply for it.

29th October 2015- Busy day today. I had a 2-hour meeting in the JCC about another phase to exercise resolute which was originally just a recovery exercise, but it has now expanded somewhat to test response to recovery. It is also a COMAH exercise, which is good experience for me. I spoke with Vicky afterwards about possibly collecting data from it. I then rushed to uni for try to meet up with Laurence, but I was slightly too late. I instead met up with Chloe and caught up with her, I put together a rough ethics form and typed up some notes and rough survey questions for Laurence to look over. I put this in an email to him. I then went through a document for Chloe and she went through my unified response survey and gave me some pointers on that.

30th October 2015- I went through some printed literature which I picked up from the emergency planning college and made notes on it. Some documents were about COMAH sites. I also emailed Sara about Ex. Resolute and she updated me on the Bosley Mill 10KV debrief we are running in December. I also emailed Vicky to say that Sara would possibly be coming along to, she will also help out.

2nd November 2015- Laurence confirmed that I do not need another ethics form, so I spent some time over the weekend fiddling with the survey to give to people following Ex. Resolute. I was in uni today and created a draft version of it and only left it at 2 pages but downloaded some articles to read alongside it so I can read it and add to it. I also read over the documents for the T4R course and attended the lecture. In the evening I spent some time going through the methods paper again.

3rd November 2015- Today I fiddled about trying to confirm my booking for the fire service college next week and I continued to add to the methods paper. I had a meeting with Sara at 11am about Ex Resolute, the Bosley Mill debrief, Ex UR and the methods paper. I then sent over emails to Sara with the amended paper attached, I also sent Vicky the survey over to check through. I also had a go of my own survey and the need for closure scale, so I am familiar with it. I also met up with Chloe for an hour.

4th November 2015- Continued to read and make notes on the need for closure scale, COMAH incidents, documents for the introduction etc. as I do not feel well so I stayed home and just read articles I had downloaded. E.g. Anne Eyre's work.

6th November 2015- Today I answered some of the emails I had missed, and I picked up where I left off with my reading. I also had an email from Michael H about completing a 1-page summary in preparation for the Alcyone course, so I text Chloe about it and started to put a draft together. I also emailed Vicky back and started to put the survey on Qualtrics, so it looks more professional and has more chance of being completed.

9th November 2015- Again over the weekend I just haven't been feeling well with my teeth, so I emailed the T4R tutor, Christos to explain that I won't be in, but I did download the work and read through it. I continued with the Qualtrics survey and sent the link over to Vicky and I made a start on the T4R assessments.

10th November 2015- Came into uni today and done an hour of work and tying up loose ends, emails etc. before I went along to the Structural Equation Modelling Seminar over at Cedar House from 9-4pm. It is a method that may be useful in the future.

11th November 2015- Today I went to Moreton-in-Marsh for the Fire Service College; I am presenting tomorrow. It took a long time to get there but I got a chance to prepare for my presentation on the way, as well as read up on some of Anne and Viv (who is chairing my session) projects and papers.

12th November 2015- The fire related research conference is today. It started at 8-5pm and then I had the long journey back. It was a great conference though, there were lots of interesting speakers and I made a lot of contacts. My presentation went well, and I got lots of questions afterwards which was nice.

13th November 2015- I did not get back until 11pm yesterday and my meeting with Michael H was cancelled so I stayed at home in the morning, emailed Laurence & co about the conference and also about something Anne mentioned about working with and lastly about an email that Debbie Appleton sent about funds for stamps. I looked through the forms that Debbie sent back and amended them before sending them back. I also responded to emails. In the afternoon I had a dentist appointment again as I am having some major dental problems.

16th November 2015- Today I had a meeting with Sara in Cheshire Fire HQ (Winsford, Chester) for the Bosley Mill Debrief. I picked Sara up early and drove the 80 miles there and back. The meeting went well, and the actual debrief is meant to take place in January. We got back in the afternoon. I did not do much else expect answer emails.

17th November 2015- Today I went into my office briefly and then I attended the final day of the 2-day SEM of the course. The first day was on the 10th. I then tidied up my folders, completed some paper work and made a to-do list.

18th November 2015- Today I was working from home as I had a dentist appointment in the afternoon. I spent the morning reading and making notes on articles on Mendeley. I also sent emails following the conference last week to Viv Brunsdon and replied to emails and questions about the casualty interviews.

19th November 2015- Came into uni today and did some catching up work to see where I had left off by amending my PhD Plan for the month and writing in notes for what I need to do and add in. I also attended a theatre production named 'Chelsea's Choice' in the afternoon with some of the forensic group. Made a list of this year's progress and what is left to do and what I want to speak to Laurence about when I next see him.

20th November 2015- Today I put together a survey for the user testing group and sent it over to Betsy & co. She replied late today so I then re-amended the survey and put together some emails to send over to Diane and Paul etc. Did some reading too as books were requested that I had got from the library.

23rd November 2015- Came into uni today and did some work on the teaching for researcher's assignments that I have. I also attended the last lecture they are doing that is on assessment support. I then went to the library and handed some books in.

24th November 2015- Came into uni and began reading and making notes on learning and teaching as I have assignments due in next week and the week after. I read all what was given to me and searched for more in order to get a good mark.

25th November 2015- Completed a draft of all my assignments for the teaching for researcher's course. I also read up on the need for closure scale and made some notes.

26th November 2015- Went over the assignments and made amendments to them and I went through the surveys for Exercise Resolute and Exercise UR. Answered emails etc. Sent Laurence over my ethics forms too.

30th November 2015- Had a meeting about Exercise Resolute in the JCC and a catch up with Vicky. I also emailed Laurence for a meeting, so I am seeing him Thursday at 2pm. I practised for my final exam tomorrow in the teaching for researcher's exam (a poster presentation) and I also had an email from Laurence to ask if I wanted to do some extra paid work on a paper he has put together so I made a good start on phase 1 of that by going through and finding references.

1st December 2015- I went into uni today and continued to look for the missing references by asking Grace. I then prepared for my final poster presentation for the teaching for researchers' course. I completed my presentation first that went well. I then had to observe other people do theirs for part of the task. I then had to write these up to submit them. Afterwards I came home and then emailed Vicky back, emailed Sara, received the paper back from Laurence so worked on that. I also spoke to Michael on the phone and discussed Exercise UR. I sent him over documents that he asked for afterwards. My computer in uni was also fixed too!

2nd December 2015- Stayed at home today to work on the paper for Laurence, once this was done, I sent it over to him. I enjoyed working on it and really enjoyed some of the associated reading. I also started writing up the two exerts of feedback for the teaching for researchers' task, but I am still waiting for the posters to be sent through from the T4R tutor Christos. I am seeing Laurence in the morning.

3rd December 2015- Met up with Laurence today at 8am and discussed what I have been up to, what is coming up and other PhD related queries I had. I then caught up with Chloe as we've been in different days, so I haven't seen her much. She kept me updated about the meetings and the work she has been doing on other papers. I completed a time sheet for the work I have been doing with Laurence and I worked on documents for Ex UR for Michael, liaising between Betsy and the MRF about the app/logo etc. and amended my plan, printed off some documents (Samuel prince's thesis from 1920!). This will be good to annotate as it was the first thesis that looked at disasters and human behaviour in them.

7th December 2015- I spent a few hours over the weekend inputting my exercise UR survey into the document that Michael H sent and replied to Betsy. Today I continued to work on the feedback for the T4R course, I can then submit it tomorrow. I also got all the library books together and had a flick through as I am going to have to take them back the library.

8th December 2015- Went into uni today for a few hours but my email was funny. I returned books to the library, printed off some documents and came home. I answered emails from Betsy, Diane, Vicky and later Laurence. I then worked on amending my ethics forms that had some comments on. I sent the edited forms back to Laurence so that it could be approved soon. It is my account that is dodgy and not just the university computer it seems.

9th December 2015- Read through some of the documents I had printed off today, I also emailed back people to organise Monday's meeting, about exercise resolute etc.

10th December 2015- Came into university and sorted out the surveys for Monday's user testing at the JCC, I made paper versions of the exercise resolute survey and created some consent forms and information sheets too. I then put together an exercise UR report outline to discuss with Michael next week when we meet.

11th December 2015- Had a few hours meeting and debrief with Vicky in St Helens Town Hall so left at 9am and was home for 3pm. I now understand what my roles are for next week and had a chance to discuss the survey properly.

14th December 2015-Over the weekend I worked on the Method paper again in order to submit it to JOOP. Grace is helping but it's just us 2. I spent a couple of hours on it over the weekend. Went to the JCC for the app user testing. I went with Sara and met Betsy and Tzvetan there. It lasted from 9.30am-1pm roughly so went home and uploaded the audio to correspond with the recorded focus groups. I collated all the audio recordings and surveys and put it on a document for Sara and Betsy. I then prepared for tomorrow's exercise.

15th December 2015- Exercise Resolute! Long day at the JCC followed by St Helens Town Hall. I went with Sara and was home quite late. I left at 7am and was home at 6ish.

16th December 2015-I came into uni at 9am done some work and sent some emails etc. I then had a meeting with Michael H at 10am about exercise Unified response and then a briefing about it with the MSc students. I then had a phone meeting with Dr Anne Eyre at her request followed by a last meeting with Sara, so I was in uni for most of the day and it ended up being full on.

17th December 2015- I came into uni today as I had a meeting in the afternoon with someone in the guild about being a rep for students coming into the university.

4th January 2016- Worked on the summary for Michael and Laurence in preparation for the Alcyone Course, I spent some time over Christmas and New Year on this. I also caught up with emails, wrote a list of where I am up to with everything. I couldn't upload Bosley Mill questions, so I emailed Sara and received the new link. I then uploaded the questions for the event. I emailed Michael and started uploading the Ex UR surveys onto Qualtrics and then I started on the Exercise Resolute Report. I also popped over to Engineering to see Alaa.

5th January 2016- Today I fiddled about with the surveys on Qualtrics and the Qualtrics offline app as Michael was sending emails about it. I also continued to go through the exercise resolute data.

6th January 2016- Today I went in to uni and began to put together the report. I also started on a skeleton draft on my thesis due to some stress of nearly finishing my first year and having lots to do e.g. Bosley Mill, Operation Trap, Alcyone, Exercise UR etc. all over the coming weeks. I also sent a lot of emails.

7th January 2016- I was back in university but over on the engineering side today. I agreed to do a project with Neil and Laurence and Chloe, so I was emailing about that. I also had to re-amend my casualty ethics forms as I emailed Debbie and she still wasn't 100% happy about them. I also tried to arrange some meetings with her.

8th January 2016- Today I was going to make a start on transcribing the interviews, but I couldn't collect them today. Instead I prepared for my meeting with Michael, I had an hour Skype meeting with Michael and then I did what he asked me in order to prepare for Exercise UR. I edited the surveys, played about with Qualtrics offline app and I emailed Michael. I also had to amend the ethics form in case it must go for expedited review. I also added the interview schedule too Qualtrics, again at Michael's request.

11th January 2016- Finished and sent Vicky the Ex Resolute report. I also finished messing about with the chapters I have for my thesis, so my thesis is 2/3 early draft complete It is up to about 70 odd pages. I had a look through some previous theses to help me such as Nikki's. I also answered emails and again tried to organise meetings. I'm going to be having a very busy 2 weeks! I wanted

to make a start on the transcribing for the military project, but I haven't received the audio yet so was emailing about that.

12th January 2016- Went into university and printed off the Casualty ethics forms to take along to my meeting that I had at the JCC about the casualty interviews with the woman helping me Debbie Appleton. I also had to collect some Dictaphones from Maria to take down to the TDA for Laurence and Michael, but I had to charge them and delete what was already on them first. My meeting with Debbie and Sue at the JCC went well, we discussed what I could send to advertise and decided on a poster.

13th January 2016- Day 1 for me of the Alcyone Course. This went well but was intense! I absolutely loved it though.

14th January 2016- Day 2 for me of the Alcyone Course. Still enjoyed it but did not stay for the meal afterwards but dropped the actors off in town and was home at 5.30pm. Instead I created a poster to email to Debbie, emailed Betsy and the Resilience Forum to plan for next week's meeting, downloaded all the interviews from Neil and interviewed him to confirm. I also had to email one of Michael's student who was needing clarity around Ex UR.

15th January 2016- Day 3 for me of the Alcyone Course this went well, and I got to finish early and get home for 3pm that was needed after such a busy week.

18th January 2016- I spent the weekend putting together a list of all the comments about the actors that I got from the feedback Michael sent me over. Today I started by dropping off the Dictaphones that I got last week for Alcyone, so I gave them to Chloe and Grace and had a quick chat with them. I also printed off some things for my meeting with Diane, Paul and Vicky about the app. The meeting itself did not go very well as they are not happy with Betsy's progress. I then finished the afternoon by Skyping with Sara about tomorrow. I prepared my clothing for it, sent some emails (to Betsy & co) and got an early night as I am up tomorrow very early!

19th January 2016- Bosley Mill Debrief! I was up at 5am as I had to get Sara at 6.30am. I was home for 6pm and it was a very long day! I did however respond to emails when I got back.

20th January 2016- Still tired from yesterday but I got up and went to Hewlett Packard HQ in Daresbury with Chloe to assist her with 2 interviews so that was a pretty full day and I was home at 5pm. Again, I did not do much work, but I did manage to answer emails.

21st January 2016- In the morning I had a Skype meeting with Michael. Afterwards I answered emails, some included putting together a project summary/abstract for the PGR Studentship team who emailed me, and I continued with the transcribing interviews.

22nd January 2016- Continued to transcribe the military interviews and had to adjust and re-send the project abstract. Also had some emails from Sara.

25th January 2016- Had a morning Skype meeting with Sara about the Bosley Mill report and was told what my role was in it, Sara is doing the beginning and end. I then met up with Grace and Chloe to discuss all we're working on together and all the other work we have been doing as we haven't seen each other much lately. I then came home, continued to work on the transcripts and on the Bosley mill report.

26th January 2016-Worked on a mixture of the Bosley Mill report and transcribing today!

27th January 2016- Today I was meeting Laurence at 1.30 so beforehand I organised my travel and accommodation while in London and I also liaised with Sara and Michael about other bits and bobs. I came into the office to do this. I went with Laurence at 1.30 to the TDA where we discussed the upcoming MTFa exercise...

28th January 2016- Again a mixture of the Bosley Mill report and transcribing today!

29th January 2016-Finally finished all my write up for the Bosley Mill report so pasted it into the report outline Sara sent over and over the weekend she sent it back with some more comments on

for me to add so I made the changes and sent it back Sunday. I also spent the remainder on Sunday transcribing the interviews or Neil. I am 4 down, 3 to go now!

1st February 2016- I changed the casualty advertisement poster and emailed it over to Debbie again, I emailed Neil to update him on the transcripts and to send them over and I continued the interviews!!!

2nd February 2016- I continued to transcribe the interviews.

3rd February 2016- I continued to transcribe the interviews and I changed and email the casualty advert to Debbie again.

4th February 2016- Responded to emails, texts from Michael H and I worked on the last military interview I have for Neil.

5th February 2016- Finished all the military interviews and with working all day Sunday I took today off.

8th February 2016- Came into my office as I was meeting up with Michael H to discuss Ex UR. In the afternoon I had an appointment so couldn't be in. I looked through my work though and made a new list of what my priorities should be. I also downloaded the 290 responses from the pre exercise UR survey to see how the questions were being answered and more so to see if I need to change anything for the more extensive post exercise UR survey.

10th February 2016- Today I went into uni to speak to the financial advisor as I am pregnant and do not know where I stand. She went through everything and gave me some advice but following my scan next week I need to inform Sara and Michael H, B and then I can then I can investigate further and perhaps create a plan. I also did some home research on the matter.

11th February 2016- Today I printed off some of the Exercise Resolute Data and went through it to make some notes. I then found some articles online that I have put into my Mendeley folder to read.

12th February 2016- Again I worked from home and worked on the survey for Exercise UR in a few weeks. I went through and made some changes to the post survey and then emailed Michael to inform him. I also read the paper that Chloe had sent over.

15th February 2016- Today I went through all the exercise unified response documents and made a list of what needs changing. I also made sure the post survey was enough. I then made a list of what I need to talk to Sara about and amended my PhD plan to talk through. I need to send a copy to Laurence too.

16th February 2016- Today I came into university as I asked Sara could I meet up with her yesterday for a supervisory meeting and to discuss my PhD progress. Before that I went through and made some amended sheets for interviewing during Exercise UR and emailed them over to Michael to look over and I showed some to Sara too. I amended it on Qualtrics too. I then had a meeting with Michael about Ex Ur and spent the rest of the day amending bits & bobs and sending them over to Michael & Sara. Either related to my PhD or to Ex UR.

17th February 2016-. Today I went into university and tried to investigate my funding situation. I downloaded some forms and emailed some different departments in the university. I also read some articles on the need for closure scale and made notes. I then met up with Chloe and Grace and attended a lab meeting afterwards that was one of Laurence's Korean PhD students who is a police officer. Following that I responded to an email from Sara about the bits and bobs I sent her yesterday. I then made the changes she suggested to the interview docs for Ex UR and sent them to Michael H.

18th February 2016- Today I asked for the day off along with tomorrow too as I have my first scan for the baby and I'm anxious, stressed but also excited. I wanted to then announce to family and visit people following it for the next 2 days.

22nd February 2016- Went into uni, mainly as I had a briefing to assist Michael with as he was explaining everything to the MSc students, so I went in with him to explain how everything works from a collecting data from casualty's perspective. I also completed the packs as I needed to print more sheets off. I saw Sara briefly too. I answered some of the MSc student's questions and I emailed them copies afterwards.

23rd February 2016- I completed my funding letter and forms today to get me some more funding for my final 6 months and Sara and Michael kindly completed reference letters for me to send off too! I also emailed Michael B to update him on my progress and pregnancy news. I also went to see the lady over in the foundation building to ask about maternity pay etc. I need to follow up once I have decided what date I want to finish. I then went to see Laurence Tidbury to see if he had any advice, that he did, and it was very useful.

24th February 2016- I have been preparing for next week by checking all the sheets, checking the uploads and downloading the pre-survey results from Qualtrics. I also started reading and making notes on the articles related to the survey e.g. need for closure scale etc. mainly in case anyone asks me what the rationale behind them and I also needs to be familiar with them in order to analyse them.

25th February 2016- Not much to do today really as I did not want to start anything new with getting a big load of data next week. I did go through and read the comments that Sara has sent over in response to my PhD plan etc. I thought about changes I could make but again it is difficult without knowing what data and how much I will get next week.

26th February 2016- After a conversation with Laurence I started to look up his publications etc. to do some work for him. I also made last minute checks to the equipment I must go on Sunday.

29th February 2016-4th March 2016- Exercise UR trip to Dartford near London for a week to collect data and to observe certain features of an international exercise named Exercise Unified Response. I went along with Sara and Michael was there too with several other MSc students

7th March 2016- Today I uploaded all the Dictaphone data and started to put together a spreadsheet that has all the information on. I collated all the sheets that people had written on too and answered emails from last week and this week.

8th March 2016- I finished the spreadsheet with the data I have by listening to all the audio and matching them with the paperwork people completed. This took longer than expected but at final count it seems we have over 150 interviews!

9th March 2016- I had an early morning email from Laurence so continued working on the work he has asked me too searching for references. Still working from home as I do not feel too good and I had an antenatal appointment today too. Continued putting together sheets and example transcripts for Michael H's students and tried to upload the data onto a shared Dropbox.

10th March 2016- Attempted to upload all the data so Michael has a copy too and made a start on adding the remainder of interviews that Michael has sent over from the Dictaphones he has. These needed to be added to the data map I have created. I also went into uni to hand in my receipts to the engineering office to claim back my money from last week.

11th March 2016- Spoke to Michael on the phone about transferring data over so managed to sort that by upgrading my drop box and then trying again. This took some time. I also had a text off Laurence that asked about the CV reference work I was doing for him, so I completed that and sent it to him quite late.

14th March 2016- Came into university and did some paperwork. Uploaded and transferred all the data I have onto my university computer and I then put in my suspension request and responded to some emails I may have missed. I also caught up with Grace and Chloe and printed off all my data in order to go through it to put together the report.

15th March 2016- Went to Mather Avenue Police Station with Laurence and a lady named Zoe Walkington for a Police Interviewing Tier 3 course. It lasted from 8-4.30pm and was interesting. I just observed and made notes.

16th March 2016- Again I attended the last day of the police training course and got to see the horses and dogs which was good too.

17th March 2016- Started to go through the data for the report and re-organised it, neatenened it all and deleted the data that I do not think can be used as it is only partially completed.

18th March 2016- Finished neatening up the files and had a problem with the one that was saved as it got rid of yesterday's work due to it saving as a .csv file instead of an .xlsx so had to re-do a lot of what I had already done.

21st March 2016- Emailed Michael to update him and tallied up some of the data into a demographic section. I also started to colour code and move about data so I can start to input them into the sections for the report.

22nd March 2016- I went into university and cleared the Dictaphones and put them on my desk. I also re-printed off some of the data so I could continue to work through it and get a draft done by the end of the week to send to Michael and Laurence. Saw Lol briefly and emailed Sara but she had gone. Completed the tables for the report.

23rd March 2016- Finished a draft of the report and sent it over to Michael to look at. The main part is 6 pages and I have added the appendices too. I do need to add quotes form the interviews too. It is a very rough draft with some comments on it weaved throughout with what needs adding.

24th March 2016- Sent the draft over to Laurence to look at too today as I can start to go back through it once I have some feedback to work with, and some transcribed interviews! Replied to emails and when I received feedback I started to read though and look at how I could implement it.

30th March 2016- Came into university and spent a while catching up with Chloe and Grace and Maria Grimes. Informed them of plans, spoke about work with them etc. I also tried to catch Sara and Sue, but they did not seem to be in all day. I completed the relevant paper work (this diary, the RDF thing on Liverpool Life and online meetings), I also emailed Laurence to see when he's next in, and made sure Michael was updated. Uploaded all my recent work from home and printed off my report and feedback. I also made sure up to date SPSS was printed and retrieved a stats book from the library to do a more accurate analysis on the report. Made a list of where I am up to and what I should do with the analysis for the report and amended the reports. Busy Day doing fiddly bits!

31st March 2016- Amended my thesis plan and continued with the next draft of the report by doing some analysis on SPSS, I done some Wilcoxon Signed Rank tests and wrote up the findings using the Andy Fields Book. I also changed all the charts that Laurence suggested and made them look a bit better.

1st April 2016- I added all the feedback from Laurence so I knew what I was changing and started on the next draft of the report. I started to implement some of the changes Laurence suggested. I downloaded SPSS on my home laptop too so I can look back at my results too. I

4th April 2016- Downloaded and looked through the transcripts that people have completed and started to look through and highlight them so I can include them in the report. I also made a start on working out what the overall scores are and made notes on how I will carry out the rest of the suggestions Laurence suggested. I emailed Michael and deleted my Dropbox business account too.

6th April 2016- Emailed Laurence to see what he wanted me to do once I had read the document given to me by Sue Giles. I downloaded the transcripts from those master's students who have completed them, and I started to read through them and extracted useful quotes from the ones we could possibly use for the Ex UR report. Ended up with 4 pages of quotes from them all.

7th April 2016- Today I went back through the report, wrote up all my queries and questions and had an hour long skype meeting with Michael. I felt better after talking to him about it as I was unsure about all of Laurence's comments and the deadline...in addition to what the European Commission, or London Fire Brigade were expecting from us. I arranged to meet up with Michael in a few weeks to go over what I have done. I then started to read through and make notes on the Operation Notarise document as Laurence wants a 1000-word summary to be produced from it.

8th April 2016- Using my notes and the document, I wrote up a 3-page, 1000-word document and emailed it to Laurence. I then continued to make improvements to the next draft of the survey in order to show Laurence on Monday and to go through it. I also made a list of what I wanted to talk to him about, including my plan of action for maternity leave and my thesis etc. I made slight tweaks to my thesis plan.

11th April 2016- Was supposed to have a meeting with Laurence at 10am...I printed my work off, annotated it and waited. While I was printing, I also bumped into Sara too so managed to have a quick catch up with her. I also received a phone call from somebody who received my letter along with the survey from MFRS so I printed off all the sheets for the interview, collected Dictaphones and phoned him back so I could be prepared to do a casualty interview. My meeting with Laurence got moved to 12pm so I spoke to him about thesis plans and work I have been doing such as the report. Felt good after the meeting.

12th April 2016- Made a start on the executive summary and seen how it tied in with the report overall. I made some slight changes to the areas that needed reducing as it is probably going to be too much at 9 pages without the appendices.

13th April 2016- I booked myself on a First aid course for babies and toddlers with the Red Cross at Brunswick near the dock road. This was a full day and I got a certificate at the end of it. Very worthwhile. It is a life skill really, very educational.

14th April 2016- Narrative Interviewing Course Day 1. This was with Dr Ciara Keirans in a building close to the ERB. It was quote useful and was about the philosophy of narrative interviewing and about qualitative data in general. Chloe attended this too.

15th April 2016- Narrative Interviewing Course Day 2. This was with Dr Jesse Cooper and was more about how to analyse narrative data and she went through some case examples from her own work. Caught up with Chloe too. A course worthwhile attending.

18th April 2016- Attended a course as part of the NHS Liverpool Asperger's Group that was about understanding people with ASD and learning difficulties. Although not directly related to my PhD it is a skill that I may need as I am going to be job hunting very soon.

19th April 2016- Emailed my reviewers about setting up my panel review meeting which is a requirement for my PhD. Emailed Vicky, Diane and Paul to inform them of when I leave and that I am pregnant etc. I completed my portfolio of activity, so it is up to date and made small changes to my CV.

20th April 2016- Finished the report for Exercise UR. Emailed Michael to see when I am sending it over or going through it with him. I also started to think about using the data for my thesis so made changes to my PhD plan and looked up some methods of analysis of the survey.

22nd April 2016- Went to university early and printed some stuff off related to Exercise Unified Response. I then went to meet Michael at the TDA as it was the last day of Alcyone, but he had some time to go through the report with me with his corrections on. We also discussed what is going on at the minute with the next exercise (discussed ways to collect data etc.), the CREST funds and publications. I had a to do list by the end of it. Dropped him off at Lime St.

25th April 2016- I spent the weekend completing my to-do list from my meeting with Michael. This included finishing the last minute changes for the 1st draft of the report to hand in, I had to look through and annotate the EUR objectives and he wanted me to send him some papers I had put

together to see if we could publish any. I sent him all these bits today and emailed Michael Beer to confirm details about the Shanghai Conference that I cannot go to.

26th April 2016- I was invited to meetings today with Laurence, Sara and Michael about the next exercise and with the people who are funding it (CREST). Initially this meant being updated by Laurence in the boardroom along with Sara and Michael. Emma Barrett and another man from communications then came along to discuss the project and things we have worked on in the past. I then drove me and Sara to the TDA to meet them there where we had a meeting with Dan Stephens. It all went well; I did not have to say much but good to be updated and good for me to know what is going on as I will be involved in the prep. Home at 5ish after dropping them all off in the city centre.

27th April 2016- Searched for and downloaded a documentary called 'Terror at the Mall' which was a recommendation from Laurence. It was good and made me think more about how people are/can be altruistic in disasters. I searched for more of the same and watched the Paris documentary and found a fire and rescue one from New York too.

28th April 2016- After seeing the documentary's yesterday I started a literature search of documents that may be useful on altruism etc. Created a download-must read folder and started to read through them. Waiting for students to finish the transcribing before I can start to put together a chapter on it.

29th April 2016- Sorted my PGR Review out so I put together a May PhD thesis plan and found a piece of work I can send over. I edited the Shanghai conference paper to send to them. I can't send it until a week before but thought I would be prepared while waiting for the transcripts (due the weekend).

3rd May 2016- I answered all my emails and tried to chase up my suspension. I also popped into university to leave the documentary for him. Caught up with a few people in University.

4th May 2016- Responses to emails from Michael, put together a document of the survey data to send to the students and downloaded all the transcripts that the MSc students had completed. Looked through and edited the transcripts. Started to read and made some notes. I also organised my folders more. Organised what I am doing when it comes to the next draft of the report as Michael has sent me over more documents from the meeting, he had with them last week.

5th May 2016- Continued to read through the articles before going through the transcripts in more detail. I read some of the journal articles I downloaded and done some more searches for articles but using different terms as some of the ones I have are not relevant.

6th May 2016- Answered emails, started to make notes on Mendeley and in a notebook from the articles I have downloaded.

9th May 2016- I went into university and went through and printed off all the transcripts so I could start going through them with some highlighters and could do some proper tallying etc. I sent my work to my PGR Reviewers and I also put together an 850-page article to send to Laurence and Michael for the CREST Blog that is being put together.

10th May 2016- Started to go through the mounds of transcript we have and making notes before I do a thorough analysis.

11th May 2016- Continued to go through the transcripts. Also tried to figure out what parts of the report we will be putting together now that Michael has sent us a structure that they want us to use. I made notes on it and sent it over to Michael to check. Also had a phone call from my second 'real' casualty so collated some forms to email her over and will wait to hear back from her if I do.

12th May 2016- Michael sent back the structure with his notes on so I continued to go through the transcripts but with that in mind. I am seeing a day 1 & 2 vs a day 3 & 4 split and not an individual day split as he previously thought. I then had an email from Laurence to check over some stuff to do with publishing, so I read over that.

13th May 2016- Today I amended the casualty article that Michael sent back, and I forwarded it to him. I also arranged a skype meeting with Laurence over some extra work to do with publishing his work on Amazon. The meeting went well, we talked through some my thesis plan and next steps to finish my PhD. Laurence also asked what he could do to help so he is going to go through a sample of my transcripts to see if he picks up on anything different. He also suggested that I send them to Michael and Sara too for them to go through.

16th May 2016- Had my risk assessment for working in the office today so went into university and had this, also caught up with Grace. I continued to read through my transcripts, prepared for my PGR Review tomorrow and backed up all my work, renewed my library books and returned some too.

17th May 2016- Have my PGR Review today at 9am, I did not feel well at all as I have a cold and cough but did not want to cancel so I went anyway and it did not last longer than 10 minutes as Tim Kirkham and Ben Ambridge could see I was not well plus I had no issues and could foresee no problems as I have all my data. They just said everything looks okay so I could go. I did not do much once I was home as I needed to sleep with not being well. I replied to emails from Nikki and other people though.

19th May 2016- Went into university to retrieve my transcripts that Sara had annotated and left on my desk. I then had my last meeting with the resilience forum (Diane, Paul and Vicky). This went well and we ironed out some plans and then we went for a leaving meal and networked (swapped numbers etc.) good for job opportunities in the future. They also got me a lovely card and present for the baby so good to know Betsy & co did not affect my relationship with them. Replied to emails when I got home.

20th May 2016- After an email from Sara I started to create an aide memoir for exercises as well as copying some information from the transcripts I had created for the exercise. I have now read through 30 (out of 180), still a lot to go. Added the annotations from Sara onto the ones I had done.

23rd May 2016- Typed up a checklist sheet from what I have been copying from the transcripts for participants in the live exercises. Once finished I sent it over to Lol, Sara and Michael and then started to make more notes on the transcripts I had done. This was about 1100 words, 2 pages. I also looked through a poster for Chloe and gave her feedback. Then once I got feedback from Laurence and Sara, so I made the changes and made it a 4-page pdf doc with text boxes, so it was clearer.

25th May 2016- After an email from Sara this morning I had to go back through and edit the exercise checklist as she wanted it in a certain format. I then went into university to back up my work, print more transcripts but also to see Grace and Chloe and catch up with them. I had a meeting with Grace about being a PGR Rep and what I am to do at the next meeting, issues that have come up etc. I then came home and continued to work through the transcripts and started to type up some notes onto a word doc, cutting and pasting quotes from the transcripts too.

26th May 2016- Continued with the qual analysis of transcripts...

27th May 2016- Continued with the qual analysis of transcripts...

31st May 2016- Had a midwife appointment and then went into university to scan my Mat B1 form over to send to the PGR administrator. I answered emails to book onto some studies to help people etc., emailed Laurence & Michael to ask about the transcripts and emailed Sara to ask for a reference for housing. I tried to look through to suggest changes for the next exercise so I can feed them back too as I keep getting emails through about this from Laurence, Sara and Michael so started to create a word doc on this. Sent emails about the PGR forum next week too.

1st June 2016- Finished the doc on collecting feedback from casualties during the Birkenhead drill, it ended up being 3 pages. It is quite detailed, and I put a lot of thought into it using knowledge from literature and previous exercises. Attended a course on thesis writing too but I had been to it before which was annoying, it was just ran by a different person. I then sent long emails to Lol,

Michael and Sara about the exercise and my participation (sending the doc) as well as emailing the masters students about meeting on Friday. I emailed Debbie from MFRS about the study and Marco about my desk.

2nd June 2016- Sent emails to the PGR staff member Colin, PGR Rep as well as Maria in a bid to be prepared for the forum next week. I also completed the written part of my progress report for this year by checking through this work diary and my PGR portfolio (as well as making sure this was up to date), but I could not send it over on Tulip as my suspension is not on it yet. I therefore emailed Sue Higham to check on the status of my suspension (for mat leave). When she replied I then completed it and sent it?

3rd June 2016- Went into university at 9.30am as I was meeting up with 3 Masters Students of Michaels as they are struggling with their dissertations. I spent 2 hours with them going over things and then I went into my office and dug out some journal articles to send them as well as other manuals and example tables etc. Copied Michael into the email so he is kept up to date with it. I then came back and continued working through my data and putting my findings into the report structure that Michael has from London Fire Brigade. As I am not sure what to keep and delete, I annotated what I had done and send a revised draft of the report to Michael as I have been editing it for a few weeks, but I am still unsure.

End of Researcher Diary due to pregnancy related health problems, difficult birth of baby then maternity leave for 12 months.

Return date 10th September 2017- Completed thesis write up for submission in Summer 2018.

Appendix 2: Exercise Information sheet

Information Sheet



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Improving the way emergency services work in the future

What is the research?

You have been asked to take part in research that will examine how the emergency services communicate with casualties during an emergency.

What am I asking you to do?

You are being asked to partake in an interview and/or survey with a student researcher and you will be asked about your experience and your interactions with the emergency services. You do not have to answer any questions which you do not feel comfortable with. The interview will be recorded but all identifiable information about yourself will be removed and the audio file will be destroyed once it has been transcribed. You can stop the interview at any time. Interviews will last no longer than 45 minutes. Surveys will be anonymous and should not take longer than 30 minutes.

Why am I collecting this information?

This information aims to look at your experience with the emergency services and aims to ask how you prefer the emergency services to communicate with you at incidents. This study also wants to look at if there was a change in your view of the emergency services following your interaction with them.

Your personal data will not be passed on to any other organization

All information will be kept completely anonymous. The researchers will not pass on any of your personal information to any other organization. All data gathered from the study is for research purposes only and will not affect any future dealings with the emergency services. Participation is completely anonymous and confidential. Audio recordings from the interviews will be transcribed and made anonymous. All data will be kept solely by the researcher and access will not be given to any other parties.

You do not have to take part

Your participation in this research is completely voluntary. You are also free to withdraw from the interview at any point should you decide that you no longer wish to take part. However, once the data has been anonymized you will no longer be able to withdraw your interview.

If you have any further questions...If you have questions following your participation in this research please do not hesitate to contact the student researcher, Lauren Swan, by emailing l.c.swan@liv.ac.uk.

Thank you for taking the time to read this information sheet.

Appendix 3: Exercise Consent Form



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Consent Form

Title of Research Project: **Improving interactions with casualties during an emergency**

Researcher(s): Laurence Alison, Sara Waring, and Lauren Swan **Please tick**

1. I confirm that I have read and have understood the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my rights being affected.
3. I understand and agree that my participation will be audio recorded and I am aware of and consent to your use of these recordings in order to transcribe the interview
4. I understand that, under the Data Protection Act, I can at any time ask for access to the information I provide and I can also request the destruction of that information if I wish.
5. I agree to take part in the above study.

Participant Name:

Participant Signature:

Date:

The contact details of the principal project supervisor are: Professor Laurence Alison; Eleanor Rathbone Building, Bedford Street South, University of Liverpool; l.j.alison@liverpool.ac.uk

The contact details of the principal student researcher are Lauren Swan; Eleanor Rathbone Building, Bedford Street South, University of Liverpool; l.c.swan@liverpool.ac.uk



Interview Schedule

NOTE TO INTERVIEWER: Before recording please check that the volunteer gives consent to be interviewed and has read an information sheet. Please explain that this interview will be audio recorded too but all personally identifiable information will be omitted.

Secondly, please record the following details verbally and on an 'interview details' form:

- 1) Interview number
- 2) Location of interview
- 3) Day of interview and the time
- 4) Age & gender of the volunteer before starting the interview.
- 5) Name of their first teacher (for reasons related to withdrawing their data).

Questions are to be asked in a semi-structured format, this interview schedule is only a guide; therefore, feel free to go along with any suitable lines of enquiry.

Opening: Thank you for taking part in this research. The aim of the research is to explore the experience you have had today as playing the role of a casualty. I hope to ask some questions on what happened to you throughout the day, how you felt this went and lastly, I would like to ask if you have any suggestions for improving how the emergency services interact with casualties in the future.

Main Interview Questions:

A - Recalling their experience

- I'm interested in finding out more about your experiences today. What role/character did you play during the exercise? What injuries did you have? What tasks did you have to perform?
- Before you arrived, what did you imagine today would be like? Were your experiences as you imagined they would be? Why/Why not?
- What was most memorable about your experience? Why?
- Have you ever had any other experiences similar to this? If so, can you tell me about this?
- What do you think police are responsible for doing in a large emergency such as this? What do you think the fire and rescue service are responsible for? What do you think the ambulance service is responsible for?
- From what you saw, how well do you think these emergency services managed to achieve the tasks that they are responsible for? Why?
- In your opinion, how well do you think the emergency services worked together? Why? Please can you give me an example of this?

B- Evaluating their experience

- What was the most positive aspect of what you experienced today? Why?
- What was the most negative aspect of what you experienced today? Why?
- Which of the emergency responders (police, fire, ambulance) did you have any interactions with?
- How well did emergency responders communicate with you during the exercise? What information did they give to you? How useful was this information/communication? Why?
- What other information would you liked the emergency services to given you? How would you like this information to have been given? Why?
- What is the most valuable thing you have learned from taking part today? Why?
- How could your experience have been improved? Why?
- Has this event changed your perception of any of the emergency services? How and why?
- Would you take part in a similar event again? Why/ why not?

C-Suggestions for future

- How can agencies increase your trust in them during such events/incidents?
- If this were a real incident, what would you expect to be done differently? Why?
- Do you think you should be better prepared for incidents such as this? If so how?
- Can you provide any suggestions to the emergency services on how to improve their response in the future?

Close: Ask about questionnaire, have they answered it? Thank them for taking part and give them a small debrief form.

Appendix 5: Exercise Participation Debrief Form

DEBRIEF FORM



Thank you

You have now completed the interview as part of this research. The purpose of this research is to explore the way in which emergency service practitioners communicate risk to members of the public in major incidents and how the public would prefer risks to be communicated in uncertain situations. We would like to thank you for taking part and we hope that it was an enjoyable experience.

Can I access the research findings?

YES – your participation in this study has helped researchers to understand important elements of emergency services decision making and communication. The findings of this research will be made available, if you would like to receive a copy in the future please provide your contact details to the student researcher (details below).

Can I contact the researchers for more information or to provide feedback about the study?

YES – your feedback and reflections on the research study are important in assisting with future research. If you have any questions about the current study or would like to provide feedback, then please contact the research supervisor or student researcher on:

Principal Project Organiser:: Professor Laurence Alison; Eleanor Rathbone Building, Bedford Street South, University of Liverpool; l.j.alison@liverpool.ac.uk

Principal Student Researcher: Lauren Swan, email address: l.c.swan@liv.ac.uk

Thanks again for your participation!

Appendix 6: Exercise Pre and Post Surveys

Survey Part A: Pre-Exercise Survey

Please answer the questions below, if they are any you feel uncomfortable answering then please feel free to leave it blank.

Mandatory test question for ethical purposes: What is the name of your first teacher?

Section A: Demographic Questions

1. Date of Birth:
2. Gender:
3. Ethnicity:
4. What is your Religious Preference?
5. What is your Employment Status? If employed, what is your occupation?
6. What area do you currently live in?
7. Were you born in this country? If not, where were you born?
8. Is English your first language? If not, what is?

Section B: Emergency Service Perception Questions

1. Below you will find a series of statements, please score your level of agreement from 1-5, 1 (*strongly disagree*) to 5 (*strongly agree*)
 - aa) I trust the Police
 - bb) I have confidence in the Police
 - cc) If I needed help, I would feel reassured to see the Police
 - dd) I would not feel secure if I was being managed by the Police
 - ee) I think the Police Service generally offer a good service
 - ff) I trust the Fire and Rescue Service
 - gg) I have confidence in the Fire and Rescue Service
 - hh) If I was trapped and needed rescuing, I'd feel secure knowing that the Fire Service would deal with the situation well
 - ii) I wouldn't feel very reassured by the Fire Service turning up if I was really in trouble
 - jj) I think the Fire Service generally do a good job
 - kk) I trust the Ambulance Service
 - ll) I have confidence in the Ambulance Service
 - mm) I would feel safe in the hands of the ambulance service
 - nn) I feel the Ambulance Service generally do a good job
 - oo) I trust that the Ambulance Service would treat me correctly if I needed medical assistance
 - pp) I trust local authorities
 - qq) I have confidence in local authorities
 - rr) I would feel reassured being in the hands of local authorities
 - ss) If I was at a survivor centre, I know the local authorities would help me
 - tt) I think the local authorities overall do a good job
 - uu) I would comply with instructions given to me by the emergency services or authorities
 - vv) I feel that the emergency services or authorities understand my concerns

- ww) I am happy with the amount of information the emergency services and authorities share with the public
- xx) I believe the emergency services and local authorities provide a great service overall
- yy) I think the emergency services and local authorities need to do more training to improve their service
- zz) I know the emergency services and local authorities are capable of looking after me if I need their help
2. Please give a reason for your answers to a-e (Scores for the Police):
 3. Please give a reason for your answers to f -j (Scores for the Fire and Rescue Service):
 4. Please give a reason for your answers to k -o (Scores for the Ambulance service):
 5. Please give a reason for your answers to p - q (Scores for the Local Authorities):
 6. Have you come into contact with the emergency services or local authorities before? If so, please explain why this was and how you rated the service you received.
 7. Have you taken part in a training event run by the emergency services or local authorities before? If so, how well did you think the event went?
 8. The table below lists 10 qualities in relation to emergency service and local authority behaviour and communication. Please order these items in terms of most and least important to you, should you be in a disaster, with 1 being MOST and 10 being LEAST. Please repeat this for each agency listed in the table below

	Police Service	Fire Service	Ambulance Service	Local Authority
Clear instructions				
Shows authority				
Makes me feel they are in charge				
Adaptable and flexible				
Warmth and empathy				
Honest				
Heroic				
Caring and kind				
Calming				
In control				

Thank you for completing this survey. If you have any questions or problems with completing this survey, please contact the researcher Lauren Swan on l.c.swan@liv.ac.uk

Survey Part B: Post-Exercise Survey

Please answer the questions below, if they are any you feel uncomfortable answering then please feel free to leave it blank.

Mandatory test question for ethical purposes: What is the name of your first teacher?

Section A: Demographic Questions

1. Date of Birth:
2. Gender:
3. Ethnicity:
4. What is your Religious Preference?
5. What is your Employment Status? If employed, what is your occupation?
6. What area do you currently live in?
7. Were you born in this country? If not, where were you born?
8. Is English your first language? If not, what is?

Section B: Emergency Service Perception Questions

1. Below you will find a series of statements, please score your level of agreement from 1-5, *1 (strongly disagree) to 5 (strongly agree)*
 - a) I trust the Police
 - b) I have confidence in the Police
 - c) If I needed help, I would feel reassured to see the Police
 - d) I would not feel secure if I was being managed by the Police
 - e) I think the Police Service generally offer a good service
 - f) I trust the Fire and Rescue Service
 - g) I have confidence in the Fire and Rescue Service
 - h) If I was trapped and needed rescuing, I'd feel secure knowing that the fire Service would deal with the situation well
 - i) I wouldn't feel very reassured by the fire service turning up if I was really in trouble
 - j) I think the Fire Service generally do a good job
 - k) I trust the Ambulance Service
 - l) I have confidence in the Ambulance Service
 - m) I would feel safe in the hands of the Ambulance Service
 - n) I feel the Ambulance Service generally do a good job
 - o) I trust that the ambulance Service would treat me correctly if I needed it
 - p) I trust local authorities (local councils)
 - q) I have confidence in local authorities
 - r) I would feel reassured being in the hands of local authorities
 - s) If I was at a survivor centre, I know the local authorities would help me
 - t) I think the local authorities overall do a good job
 - u) I would comply with instructions given to me by the emergency services or authorities
 - v) I feel that the emergency services or authorities understand my concerns
 - w) I am happy with the amount of information the emergency services and authorities share with the public

- x) I believe the emergency services and local authorities provide a great service overall
 - y) I think the emergency services and local authorities need to do more training to improve their service
 - z) I know the emergency services and local authorities are capable of looking after me if I need their help
2. Please give a reason for your answers to a-e (Scores for the Police):
 3. Please give a reason for your answers to f -j (Scores for the Fire and Rescue Service):
 4. Please give a reason for your answers to k -o (Scores for the Ambulance Service):
 5. Please give a reason for your answers to p - q (Scores for the Local Authorities):
 6. If you have come into contact with the emergency services or local authorities before, please explain if you think they provided a better service during this event in comparison to the service you received last time and explain why this is.
 7. If you have you taken part in another training event run by the emergency services or local authorities before, please explain if the service you received at this event was better or worse and explain why.
 8. The table below lists 10 qualities in relation to emergency service and local authority behaviour and communication. Please order these items in terms of most and least important to you, should you be in a disaster, with 1 being MOST and 10 being LEAST. Please repeat this for each agency listed in the table below

	Police Service	Fire Service	Ambulance Service	Local Authority
Clear instructions				
Shows authority				
Makes me feel they are in charge				
Adaptable and flexible				
Warmth and empathy				
Honest				
Heroic				
Caring and kind				
Calming				
In control				

Section C: Training Day Questions

1. What was your role on the day?
2. What tasks were you responsible for completing?
3. Did you find any parts of this day challenging? If so why?
4. Can you think of anything that may have helped you in overcoming these challenges?

5. Did you learn anything from taking part in this training day? If so, what did you learn?
6. What aspect of the event will you remember the most? Why?
7. Did any of the emergency responders (Police, Fire or Ambulance) or any other agencies (e.g. local authorities) communicate with you personally on the day? If so who? And how often?
8. Which agency did you come into contact with the most?
9. Did you feel happy with the amount of information given to you during this event? Why?
10. What changes would you like to see being made for future incidents?

Section D: Preference Questions

1. Please complete the table by indicating how you felt the emergency services communicated with you and how you would like them to communicate with you in future. Please write your level of agreement to each descriptor (*1=strongly disagree, 5= strongly agree*)

Communication descriptor:	How they communicated during the exercise	How I would want them to communicate
Authoritatively		
Aggressively		
Reassuringly		
Confidently		
Supportively		
Precisely		
Eloquently		
Practically		
Persuasively		
Empathetically		
Assertively		
Enthusiastically		
Caringly		
Honestly		
Frequently		
Sparsely		
Insufficiently		

Sufficiently		
--------------	--	--

2. Are there any other words you would use to describe how emergency services were communicating with you during the exercise?

3. Are there any other words you would use to describe the way in which you would want to be communicated with?

Thank you for completing this survey. If you have any questions or problems with completing this survey, please contact the researcher Lauren Swan on l.c.swan@liv.ac.uk

Appendix 7: KMAF Warrior Participant Advertisement



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EMERGENCY SERVICE TRAINING EVENT

PARTICIPANTS WANTED:

In association with Merseyside Fire and Rescue Service and Merseyside Ferries, the University of Liverpool are hosting a rare and exciting live one day multi-agency training exercise and are offering **YOU** the unique opportunity to participate as role players on the day.

The exercise will be based on an incident occurring on an operational ferry in the River Mersey. The purpose of this training exercise is to allow the emergency responders to test their capabilities in managing these threats in a difficult and unusual location. **Your participation** can aid in improving the future policies and protocols of emergency services.

This will be an interesting and undoubtedly exciting opportunity to observe first-hand how the emergency services operate. As well as being fascinating, it is a chance to help emergency responders and your local community. Places are extremely limited so you must register interest by e-mailing Lauren Swan on hllswan2@liv.ac.uk. If you have any questions or seek further information you can also contact Lauren Swan via e-mail.

VENUE: A Mersey Ferry on the River Mersey

DATE: Thursday 6th March 2014

TIME: Approximately 9:00am – 3:00pm

SPECIAL REQUIREMENTS OF PARTICIPANTS:

The majority of roles require suitable undergarments to be worn underneath clothes (such as a swimsuit, wetsuit or tight sportswear) as the fire service will be using decontamination processes that will require outer clothing to be removed. Participants must be over 18 and must not suffer from sea-sickness.

EXAMPLES OF AGENCIES INVOLVED: Mersey Ferries, Merseyside Fire and Rescue Service (including a Mass Decontamination Disrobe Unit), Mersey Travel, Merseyside Police, North West Ambulance Service (including the Hazardous Area Response [HART] Team) and the Local Authority.



Appendix 8: Joint Endeavour Participant Advertisement



National Ambulance
Resilience Unit
NARU



JESIP
JOINT EMERGENCY SERVICES
INTEROPERABILITY PROGRAMME

VOLUNTEERS WANTED



Volunteers willing to play the part of casualties for a national emergency services exercise.

We require volunteers who will be willing to play the part of casualties for an emergency services training exercise on **Thursday 18th September 2014** in **Croxteth, Liverpool** (exact location to be announced). **Would you like to take part?**

You will be able to observe the emergency services realistically working and testing their procedures out during a national exercise which promises to be exciting. This **rare and unique opportunity** will give you a true insight into the **emergency services response**. Not only will your participation ensure that frontline responders are trained to the highest standards, it can also aid in **improving future policies and procedures** of the emergency services.

There are **no special requirements or qualifications** however we do ask that those taking part are keen, enthusiastic, able to follow directions from staff and able to act in an appropriate manner. A **casualty workshop** will take place a week prior to the event which will go over the expectations of being a casualty. **Lunch, travel and off-site parking** will also be organised for you on the day of the exercise.

If you would like to volunteer for this then **please sign up** by e-mailing **Lauren Swan** on hllswan2@liv.ac.uk. Please note that places are extremely limited so email as soon as possible and make sure you are confident you can attend on the 18th of September before taking up a place. If you have any questions or seek further information you can also contact Lauren Swan via e-mail. **Closing Date for submission is the Thursday 4th September 2014.**



Appendix 9: Focus Group Information Sheet



UNIVERSITY OF
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Information Sheet

Investigating the communication of risk and community resilience

What is the research?

You have been asked to take part in research that will examine the communication of risk and community resilience.

What will I have to do?

You will be asked to fill in a short form, which should take no longer than 5 minutes. You will then be asked to take part in a focus group which will ask exploratory questions about your current knowledge of risks in your area and will also ask for your opinion about some community resilience related topics.

What is it measuring?

All data gathered will examine your preferences about risk communication and about ways to increase your knowledge of risks. It also aims at improving the information made available about risks in your area for you to view.

Am I being tested?

No, you are **NOT** being tested. Participation is completely anonymous and confidential. Any audio recordings will be transcribed and made anonymous. Physical recordings will be kept solely by the researcher in a locked safe and access will **NOT** be given to any other parties.

Will my data be passed on to my superiors?

No – all information will be kept completely anonymous. The researchers will **NOT** pass on any personal information to your organization or any external party. All data attained from the study is for research purposes only.

Do I have to take part?

No – your participation in this research is completely voluntary. You are also free to withdraw from the research at any time should you decide that you no longer wish to take part.

If you have any further queries about taking part in this research or questions about the aims of the research in general, please do not hesitate to contact the researcher, Lauren Swan, on l.c.swan@liv.ac.uk.

Thank you for taking the time to read this information sheet. If you would like to take part in this research, then please read and sign the attached consent form.

Appendix 10: Focus Group Consent Form

Consent Form



UNIVERSITY OF
LIVERPOOL

Title of Research Project: Investigating the communication of risk and community resilience.

Researcher(s): Laurence Alison, Sara Waring, and Lauren Swan **Please tick**

1. I confirm that I have read and have understood the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my rights being affected.
3. I understand that, under the Data Protection Act, I can at any time ask for access to the information I provide and I can also request the destruction of that information if I wish.
4. I agree to take part in the above study.

Please complete the following to consent:

Participant Name:

Participant Signature:

Date:

Appendix 11: Focus Group Questions

Focus Group Questions ideas

- Have you heard of a) Community Risk Register b) Merseyside Prepared c) Resilience Forums?
- Where would you typically go for risk information about your local area?
- How do you feel risk is currently communicated to you?
- How would you like to receive risk communication? When would you like to receive risk information? Who would you like to receive risk information from?
- Do you think it is beneficial to know the risks in your local area? Why or why not?
- How much preparation would you put into preparing for risks?
- Do you think the public should receive information to help themselves?
- Are you aware of this website? *Show Website*
- What do you think of it visually? How informative do you think it is?
- What would you expect to find on this website? Do you think anything is missing?
- How comprehensible do you feel the description of risks is?
- Would you use this website? If so, when?
- Who do you think it would be most useful for?
- Can you suggest any ways to improve the website?
- What is the best thing about the website? And why?
- What is the worst thing about the website? And why?
- Where would you think is a good place to advertise this website?
- How does hearing about potential risks make you feel? What impact does it have?

Appendix 12: Community Resilience Survey Questions

Public Survey Questions

Statements

People will have to tick next to these statements before accessing the survey:

- I confirm that I am over 18 years old
- I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason
- I understand that, under the Data Protection Act, I can at any time ask for access to the information I provide and can request the destruction of that information if I wish
- I agree to take part in this short survey

Section 1:

- A) D.O.B
- B) Gender: M/F
- C) Occupation:
- D) Ethnicity:
- E) Do you live in Merseyside? Yes/ No
- F) If yes, how long have you lived in Merseyside (in years)?
- G) If yes, which area of Merseyside do you live in? [Choices: Liverpool, St Helens, Sefton, Wirral, Knowsley]

Section 2:

- A) Are you aware of what to do if an accident happens in your area? Yes/No
Please give a brief description of what to do
- B) Are you aware of any evacuation or emergency plans for your area? Yes/ No
Please give a brief description of what these plans are
- C) Are you aware of the Merseyside Community Risk Register? Yes/ No
If yes, please briefly describe what this is
- D) Are you aware of any advice issued by local authorities, emergency services or the UK Government on what to do in an emergency? Yes/ No
What did this advice say?
- E) What information do you currently receive about preparing for emergencies in your local area?
- F) Who provides this information?
- G) What information would you like to receive?

- H) In what format would you like to receive this information? (*for example: online newsletters or leaflets*)
- I) Which organisation would you like to provide it?
- J) Would you visit a website that contains emergency plans, advice and other information for Merseyside? Yes/ No
- K) What else would you like to see on this website and why?

Section 3:

- A) If an emergency was to occur which you were concerned about...
- i) Which organisation would you turn to for more information? [Choices: Police, Fire and Rescue Service, Ambulance Service, Local Council, Local/National Radio, Local/Regional newspaper, Sky News/BBC News, Other]
 - ii) Why would you turn to this organisation for more information?
 - iii) Where do you go to access this information? [Choices: Website, Radio, Newspaper, Friends or Family, Social Media, Other]
 - iv) Why do you prefer to access this information in this way?
- B) On a scale of 1-10 (*1 being 'I disagree' and 10 being 'I agree'*) please indicate your response to the following statements:
- I am given enough information to be prepared for possible local emergencies
 - The information that I have about preparing for possible emergencies makes me feel reassured
 - I believe local organisations (*including Local Authorities, Emergency Services, Health Agencies, Utilities and Transport Agencies*) provide me with enough information to be prepared for possible emergencies
 - I want to know more information on how to be prepared for possible emergencies
 - I believe that it would be beneficial to give the public more information about preparing for local emergencies
- C) Finally, do you feel that having more information about how to prepare for emergencies would reassure you or would make you feel panicked? Why?

Thank you for taking time to fill in this survey. For further information please contact Lauren Swan: l.c.swan@liverpool.ac.uk

Appendix 13: Exercise KMAF Warrior Report

Report produced for Merseyside Fire and Rescue service in relation to operation KMAF Warrior

|| June 27, 2014

1. OVERVIEW:

Background and Description

Operation KMAF Warrior was a large-scale multi-agency training event that took place on the 6th March 2014. The exercise scenario involved a ferry colliding with another vessel, resulting in two casualties going overboard and the dispersal of an unknown white powder that was a potential contaminant to ferry passengers. Members of the public (further details in see Table 2.0) played the role of ferry passengers and presented a level of realism for emergency services throughout the exercise.

Research scope

Data was collected pre, during and post-event in order to explore a range of issues of relevance to Merseyside Fire and Rescue Service including, major incident response planning, interoperability between agencies, decision making processes and use of technology. The first section of this report will focus on public perceptions of how the event was managed and risk communicated to them, the second and third sections will examine emergency service interoperability and decision making respectively.

1. Public perceptions

Understanding public perceptions of major incident management and preferences for communication of risk throughout these events is important as research suggests that the ability for emergency services to interact with the public is a frequent failure in public enquiries (Pollock, 2013). Furthermore, the preferences and perceptions of the public are often overlooked when creating policies (Frewer, 2010) and in particular when communicating risks and uncertainties (Rogers et al, 2007).

The aim of this section of the report is to provide feedback from members of the public who came into contact with the Fire and Rescue Service during KMAF Warrior. It is appreciated that this is only one isolated training exercise with a small representation of the population; however, it is a rare opportunity to receive honest and structured comments following an incident. The sample of members of the general public participating in this event were predominantly comprised of students, which has many benefits; for example, they are usually more than willing to provide truthful and constructive reflections of the event as requested. It is therefore hoped that their responses may be of some use in highlighting strengths and suggestions for improving future interactions with the public.

Subsection A: Public Perceptions of the Fire and Rescue Service

The majority of the people taking part played passengers on board the ferry and later on a few of these went on to act as casualties. The main challenges of the day reported included overcoming the lack of communication and knowing how to deal with the injured people with no instructions (on the ferry). The main learning points for people

taking part was the decontamination procedures, how important team work is, that there is a time delay between incident to treatment and that more medically trained staff are needed (on ferry).

People participating in KMAF Warrior completed a questionnaire prior to the event in which they were asked about their previous experiences with the emergency services (Police, Ambulance and Fire) and their perceptions of each of the services (*see Table 2.0*). Approximately 54% (25) of people had a previous experience with the emergency completed a post event questionnaire, which was compared to the pre questionnaire to analyse any changes in perception of the services (*see Table 1.0*).

Before the event it was found that the public strongly agreed that they could trust and have confidence in the Fire and Rescue Service; reasons for this included the nature of the job, the media's portrayal of the service, word of mouth, their own experiences and also having little contact with them. Prior to the event, the Fire and Rescue Service were the most trusted blue light agency, but this altered post event. However, there was still a high level of trust and confidence in the service.

On the post event questionnaire, trust and confidence slightly decreased. Reasons given for ratings of trust and confidence included, they were very effective during the event, they did not communicate or give instructions very often, previous experiences with the service, they were very helpful during the training, and it was also stated that they were not very helpful during the training. These contradictory findings highlight how members of the public hold different perspectives, even in relation to the same training day. This is supported throughout the transcripts of debriefs conducted with the public as some people made positive comments, for example *'8/10, the firemen were brilliant'*, whereas others complained that *'the firemen was laughing at us [sic]'* when discussing the decontamination.

Looking at the emergency services as a whole and comparing the averages from both questionnaires (*See table 1.0*), it can be concluded that after the event people felt they wanted the emergency services to share more information, there was a stronger desire to know about the procedures before an emergency and people felt less like their concerns were understood by the emergency services. This is supported throughout the interviews, for example one participant said:

'Emergency services could have told us why, what, when everything was happening and instructed us on what we were supposed to do.'

The impact of this lack of communication is also highlighted in a quote from another participant:

'There was a lot of waiting around with no information of what was happening, what we would be doing next and if it had been a real situation I would have felt extremely panicked and worried as a result.'

On the other hand, there were also a lot of positive comments made:

'The overall exercise was a great experience helping me to learn about decontamination procedure and the emergency services. It also helps you understand what a real event like this would be like.'

Table 1.0: Table to show the averages before and after the training event. In both questionnaires they scored their level of agreement to the statement on a scale of 1-10, 1 = *strongly disagree* and 10 = *strongly agree*.

Statements	Pre event average	Post event average
I trust the Fire and Rescue Service	9.09	8.59**
I have confidence in the abilities of the Fire and Rescue Service	9.17	8.63**
I trust the Ambulance Service	9.09	8.83
I would always comply with instructions given by the emergency services	9.17	9.34
I have confidence in the abilities of the Ambulance service	8.96	8.67
I feel that the emergency services would understand my concerns	8.78	6.87**
I have confidence in the abilities of the Police	8.35	8.29
I trust the Police	8.30	8.29
Before an emergency I would prefer to know the procedures of the emergency services	7.52	8.88**
I am happy with the amount of information the emergency services share with the public	7.65	5.96**

** *This difference in scores is statistically significant*

Subsection 2: Participant Response to Mass Decontamination

One section of the questionnaire specifically focused on participants' experiences of going through the mass decontamination as this was assumed to be a new and novel situation for them to be in. Participants were not given information about the procedure beforehand by any of the researchers in order to maintain the realism of the exercise. The questionnaire focused on participants feelings before, during and after the process, the level of comfort they felt, how informed they felt, their impressions of the Fire and Rescue service on leaving the decontamination and whether or not people would comply with instructions in future. Responses can be found below:

- The majority of people felt very uncertain before going through the decontamination, although 50% (18) of people said they would not feel uncertain about going through it again as they now know what to expect
- Going through the process, 39% (14) of people said they felt they were treated with dignity, 11% (4) said they did not feel they were treated with dignity. Half of the respondents (18) did not give a yes or no answer but on the whole, it was more positive than negative
- 39% (14) of people felt as comfortable as they could be in this situation and said it could not be improved whereas 28% (10) of people said they were not as

comfortable and that it could have been improved by communicating more and by keeping the participants informed

- 55% of the people taking part (20) stated they did not feel fully informed because they did not know what was going on and were not instructed adequately
- 55% (20) of people had confidence in the responders dealing with them as it was stated they were very efficient; they knew what they were doing, and they were from a reputable organization
- 50% (18) also reported coming away with a good impression of the Fire Service due to them being friendly, efficient and for indirectly teaching them about a procedure. One quarter of people (9) said they did not come away with a good impression due to the lack of urgency, communication and the lack of interest shown
- 75% (27) of people would comply with all future instructions because they would not know what else to do and the Fire and Rescue service know what they are doing as the experts

In addition to the questionnaire, people who took part in interviews and were asked to discuss their experiences going through the decontamination. As a whole, the confidence or ability of the responders as well as the procedure itself did not cause any concerns, however the lack of communication did. Quite a few participants made reference to the limited interaction with responders and the inadequate instruction; although it was frequently mentioned that there might be a difference in the way responders communicate in a real incident as opposed to this training event. Below are some examples of what was said regarding the decontamination.

When asked what the emergency services could do differently following the incident:

Participant 1: *'Definitely the decontamination, offer instructions, we were just handed the packs and put in a room and...'*

Participant 2: *'And when I tried to get some help on how I should wear all those things, they just told me to follow those directions here'*

Participant 3: *'You wouldn't, nobody would be reading those instructions. People didn't know to read them and we were like not really injured or panicked. So in like an actual emergency event there should be someone there to be communicating'*

Participant 2: *'...maybe if it was a real thing they would react differently'*

Participant 4: *'Just think it would have been beneficial to like allocate one person at least to explain to us like a step by step matter what to do in the tent, how to put our clothes into the bag what's going to happen next...'*

Participant 5: *I remember asking, 'is it the white or the green one first?' and the guy was like 'it's obviously this one first' and I was like 'really? It doesn't say anything on there'*

Participant 2: *'There was this underwear and some people were putting it on their heads!']'*

Table 2.0: A table to show the demographic information of participants that took part in all aspects of KMAF Warrior.

	Total number of participants*	Gender	Occupation
Interview	56	16 Males 40 Females	44 students 6 Red Cross Volunteers, 1 Mersey travel worker, 5 other
Survey	24	4 Males 18 Females	24 students

Subsection 3: Recommendations

The following recommendations are based on all aspects of the questionnaires and debriefs (*details of the participants in Table 2.0*). It is important to note that recommendations 1-5 include all of the agencies involved and are not specific to the Fire and Rescue Service.

1. **Communicate more frequently with the public throughout any incident.** This will alleviate feelings of uncertainty and will reassure the public. Any information you can give is beneficial; more communication in general was the main recommendation made by the participants.
2. **Explain what, why, where, when and how.** Although the main suggestion was to communicate more in general, a lot of people reported wanting to know specific details such as what was actually happening, why they had to do things (e.g. undergo decontamination), where they were to go next, when things were happening and how the procedure is supposed to go before they took part in it.
3. **Respond quickly.** A quicker response in general would be useful as the public felt there was a large gap in the amount of time taken to identify the injured and then to treat them (contamination to decontamination in this case). However many responses indicated that the Fire and Rescue service were efficient in their response.
4. **Identify yourself.** Ensure that staff identify themselves as many of the public could not distinguish between which responder was from which service - a large number of participants did not recognize that it was the Fire and Rescue Service that gave the disrobe packs out and put them through decontamination.
5. **Increase realism.** Some of the participants felt the responders were not taking the exercise seriously enough which meant they could not take their role seriously and act out what they were supposed to. However this did not affect people's enjoyment of the day; people reported having a great day and enjoying their experience.
6. **Suggestions given to improve the decontamination process** are all related to giving clear instructions and communicating more. Improving this would positively alter the level of comfort, uncertainty and dignity people feel going

through decontamination. Communicating more to the public will enable them to feel less uncertain, more informed, more dignified, more comfortable, more reassured and will allow the public to maintain the high levels of confidence that they have in the Fire and Rescue service.

7. **Overall suggestions** on how the emergency services as a whole could improve their relationship with the general public included: community interactions (in non-emergencies too), being visible at local events, being friendly to the public, publicizing the good things the services do, having an involvement with schools and higher education, e.g. career days, giving the public some knowledge of their procedures and supplying them with preventative measures.

2. Interoperability

As public inquiries have highlighted (Pollock, 2013), interoperability has been consistently identified as an area that could be improved between emergency services. These findings highlight the need for research to continue to examine interoperability, to identify potential hurdles to interoperability and solutions for overcoming these barriers. According to ACPO (2009) interoperability can be defined as “*The capability of organisations or discreet parts of the same organisation to exchange operational information and to use it to inform their decision making*” (p.14). The aim of this section is to provide feedback on the interaction and co-operation between the Fire and Rescue service and partner agencies during KMAF Warrior. It should be noted that these findings are only preliminary in nature

Subsection A: Interoperability and barriers to multi-agency co-operation

Throughout the day recording took place around the dockside, within the tactical control room and within the strategic control room. Post-event, interviews have been conducted with members of the emergency services and other agencies who participated in the event. The transcripts from these recordings have been analysed using a coding process that identifies comments relating to interoperability and sorts these into common themes. These common themes include, *shared situational awareness, co-location* and *communication*.

Shared situational awareness

A major principle of joint working is having a shared situational awareness across agencies; results show that across all agencies a shared situational awareness was created. Members of the Fire and Rescue service displayed good co-ordination with their partner agencies, in particular with North West Ambulance Service, Merseyside Police and Merseytravel with regard to the decontamination of the passengers and the ferry itself.

It should be noted that the different command structure that Fire and Rescue utilize with regard to tactical command was not made clear to other agencies. This reduced the shared situational awareness at the tactical level, which had a knock-on effect for the ability of multiple agencies to develop joint dynamic risk assessments and decisions at this level.

Co-location

Within the tactical meetings the Fire and Rescue service tactical liaison dealt well with the challenging layout at the command centre, most notable, the lack of space which meant that separate rooms had to be set up to accommodate tactical level command

across agencies. This layout effected the co-location of agency members, reducing the frequency of face-to-face communication and co-ordination. Having the tactical liaison and support staff in different rooms prevented the tactical liaison from remaining in the main tactical meeting room. This reduced the ability of other agency members to communicate with MFRS and vice versa.

Communication

The analysis across the command levels has revealed certain communication issues between command levels within the Fire and Rescue service. These lapses in communication resulted in information being delayed in its relay up and down the command chain. This in turn would have impacted upon decisions made in relation to dealing with the incident. In order for interoperability to occur, all agencies need to exchange operational information in a timely manner. If there is a delay in the communication within an agency this will impact upon the ability of that agency to exchange operational information with the other services. Although there were some delays, the information communicated by the Fire and Rescue service was clear and relevant to the emergency situation.

The analysis has also shown the positive impact that preexisting working relationships has upon supporting the principles for joint working, as outlined by JESIP (2013).

Subsection B: Recommendations

1. **Command structure.** Ensure that all partner agencies understand the differing command structure that Fire and Rescue use in order to avoid confusion and to promote the rapid exchange of information across agencies at all levels within the command structure.
2. **Co-location.** Ensure that the locations being used to hold the strategic and tactical coordination meetings are big enough to accommodate all emergency services' staff, including the support staff as this will aid with rapid and effective communication of information.
3. **Direct communication.** Establish direct lines of communication between all command levels, as this will allow the communication of information in a timely manner.
4. **Combined training exercises.** Continue to build strong working relationships with the partner agencies by participating in combined training exercises.

3. Decision Making

Emergency service decision-making has the potential to both increase and decrease the risk posed to public safety within critical and major incidents (Hall, Grieve, & Savage, 2009). Identifying factors that both improve and hinder effective decision-making, along with solutions for improving decision-making is therefore important for promoting public safety. Research identifies a number of factors that can sometimes hinder decision-making, including: accountability (Waring et al., 2013); heavy cognitive load (defined as pressures affecting how effectively information is processed), which can be influenced by information overload (defined as too much available information to make an effective decision), short time constraints and serious consequences or high stakes (Alison & Crego, 2011); and communication underload

(defined as lack of available information to make an effective decision). Critical and major incidents, characterised by high risk and uncertainty, require information to be presented in a clear, accurate and timely manner to support effective decision-making.

Subsection A: Decision making

The following are preliminary findings collected from the following sources: audio recordings of the Silver tactical coordination groups (TCG) and Gold strategic coordination groups (SCG), post-event questionnaires and follow-up interviews. Data analysis focused on understanding the decision-making challenges faced and identified the following themes: *information underload*, *uncertainty* and *task fixation*.

Information underload

While inter-agency communication was facilitated by being physically located with other partner agencies at both a strategic and tactical level, within-agency communication suffered. Within the transcripts, Silver received less detailed situational information compared to Bronze. Gold command also appeared at points to lack detailed up-to-date information from Silver, information that was required by Gold command in other agencies and so held up decision making. This was not only an issue with MFRS, but was also identified as a problem for other agencies.

Uncertainty

Communication between MFRS and other agencies during the training event was rated as being very efficient, event by participants. However, transcripts and questionnaire responses highlight a lack of knowledge and understanding regarding the abilities and responsibilities of MFRS, thereby creating confusion. In Silver, this almost resulted in MFRS assuming responsibility for a potential environmental contamination. This had the potential to impact upon available resources needed for other tasks during the event, and also meant that time was spent discussion responsibility rather than directly addressing the issue. In a real-incident it is possible that this uncertainty and time diversion could result in decision inertia or even a failure to respond.

Task fixation

While decontamination procedures themselves progressed quickly, post-event follow up interviews concerning the procedural 'Gold Standard' of MFRS response identified that prompt issuing of disrobe packs was missed as a decision which could also minimize contamination. This could have been due to task fixation (focusing on a particular objective to the exclusion of other priorities): in this case, focusing on the decontamination procedures rather than the purpose behind them.

Operationally, MFRS displayed flexible thinking and decision-making, as shown when technological failures impaired the decontamination procedure traffic light system. By swiftly and decisively devising a work-around method of manual timings, disruption was avoided.

Subsection B: Recommendations

Based upon the preliminary findings of the types of challenges identified from all the collated data, the following recommendations are designed to provide solution-focused suggestions.

1. **Focus on quality and clarity when communicating information.** Ensure information regarding both the incident itself and actions taken are detailed enough to produce a clear picture of the situation for higher level command staff. This could be achieved by developing clearer guidelines on what information is particularly crucial when conducting situational updates.
2. **Develop alternate messaging system.** Implementing a technological system where information can be passed in real-time could assist when command staff are unavailable (for example, TCG or SCG meetings) and avoid interruption. For example, Telegram is a text-based messaging system that can be installed on tablets, computers, smart-phone devices or accessed via internet browser. Telegram enables devices to be securely connected via Internet. Up to 200 users can share information such as: voice notes, text notes, images, sound, video and other file formats. This could increase the quality of communication passed between command structures and speed up decision making by making more detailed information available quicker.
3. **Foster greater mutual understanding between partner agencies.** Continue to engage in further inter-agency training opportunities, holding briefings/meetings to highlight and discuss capabilities, highlighting relevant responsibilities and capabilities during initial strategy/tactical meetings, or by sharing MFRS handbooks with partner agencies. This could potentially help reduce uncertainty and facilitate faster decision-making.
4. **Develop critical thinking during training.** It is important for the purpose behind an action to be considered, and to critically evaluate if the end objective is being met. Include stop-and-think points within training events where participants critically evaluate actions that have been taken or are planned, and post-event during debriefs. This may encourage habitual critical thinking during real incidents, thereby avoiding task fixation and ensuring important decisions are not missed.

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Thank you for taking the time to read this report

If you have any further questions, wish to give feedback or seek any further information please contact Professor Laurence Alison, email address: alisonl@liverpool.ac.uk.

[Waring, S., Alison, L., & Humann, M. Supervisory Team, Critical and Major Incident Research Group.](#)

[Swan, L. \(Section 1\), Barratt, Pink, C. \(Section 2\) and Mattalia, A. \(Section 3\)](#)

Appendix 14: Exercise Joint Endeavour Report Extract

SECTION 2: PUBLIC PERCEPTIONS

By Lauren Swan

Research scope

It is estimated that 171 took part in Joint Endeavour playing the role of either casualties, family members or concerned members of the public. In order to gather perspectives on a range of issues of relevance to both the emergency services and major incident response planning, data was collected from pre and post exercise surveys and post exercise interviews (See Appendix (?) for copies of the survey and Appendix (?) for information on casualties taking part in this research).

This section of the report is split into 3 subsections: recommendations, public perception of agencies and observed response.

1. Recommendations:

The following recommendations are based on the findings of the surveys and interviews.

1. **Communicate more with the public-** This will alleviate feelings of uncertainty and will reassure the public, even if they are non-responsive. It was felt that communication was predominantly focused on communication between agencies and just needed to be fed down to the casualties and their friends and family.
2. **Keep the public informed:** Although the main suggestion was to communicate more in general, a lot of people reported wanting to know specific details such as what the situation actually was (e.g. train derailment and bus crash) and any procedures they may be undergoing, whether this be extraction from a car or having a cannula inserted. Not only is it reassuring but casualties also stated that it reinforces the fact that the emergency services are confident in what they are doing.
3. **Provide an estimated time for help to arrive-** Although reducing the response time is the most desired option, it may not be the most practical due to resources, dangerous conditions for responders and the seriousness and/or scale of the incident. This is acknowledged by the public who suggested an alternative solution which was to be told an estimated time in which they will be rescued or treated; this stop them feeling forgotten about or panicked.
4. **Enable to the public to help themselves-** If there are members of the public able and willing to help others who are not too seriously injured themselves then provide them with instructions. This may limit further damage, injury and could possibly save the lives of others e.g. applying a tourniquet for traumatic amputations.
5. **Have more training events-** Casualties taking part in this exercise believed that this event had mutual benefits for all people involved, casualties and responders, as everybody learnt from it. Having more training events also means there is a potential to increase the trust and confidence people have in the emergency services.

2. Public Perception of Agencies

Understanding the impact that the exercise had on public perceptions of the agencies involved is useful to know for future emergency service response, especially when trying to gain compliance and support from them. Changes in public perspectives were measured using pre and post event surveys which inquired about perceptions of emergency services as a whole and each of the three blue light agencies specifically. Additionally, one to one interviews gave casualties the opportunity to discuss their thoughts in relation to the emergency services.

Part A: All Emergency Services

Findings from the surveys showed that overall casualties had more trust and confidence in all of the emergency services after the exercise (see Figure 8). In total, 14 out of 48 people stated that their perception of the emergency services had changed post exercise with the majority of them providing a positive reason to accompany it. Positive reasons included an appreciation of the hard work the emergency services do, an understanding of the pressures they face and being impressed with their level of professionalism. There were 5 people who reported a negative change in perception due to the response time and lack of communication; both of which are discussed further later on.

The optimism and appreciation of the emergency services outweighed the pessimism throughout the interviews as people's concluding comments usually offered some realisation of the hard work involved and a reinforcement of the trust they have in the blue light services:

'That I love the emergency services, they do a great job. It was really heart-warming at times and really lovely to see. They do a great job.' [Line 1523]

'It sort of just makes you aware of the fact that the emergency services have to work so hard at you know who needs what and the noise and that kind of thing' [line 1005]

Pre and post exercise comparisons also indicate that people felt more educated in the emergency service response, happier with the amount of information the emergency services share with the public and they also felt more like the *emergency services would understand their concerns* (see Figure 8).

Post exercise, people felt a stronger desire to know what emergency service procedures were in advance of an emergency and this was also mentioned throughout interviews with people suggesting that the public should be more prepared for incidents in case the emergency services have not arrived yet. In particular, the public would like to know that other members of the public can perform some basic first aid:

'And if there was people able to say in this situation you know I'm a first aider or you know erm some sort of certification who can help. if there was members of the public who could help out and that would help because on the train, if there

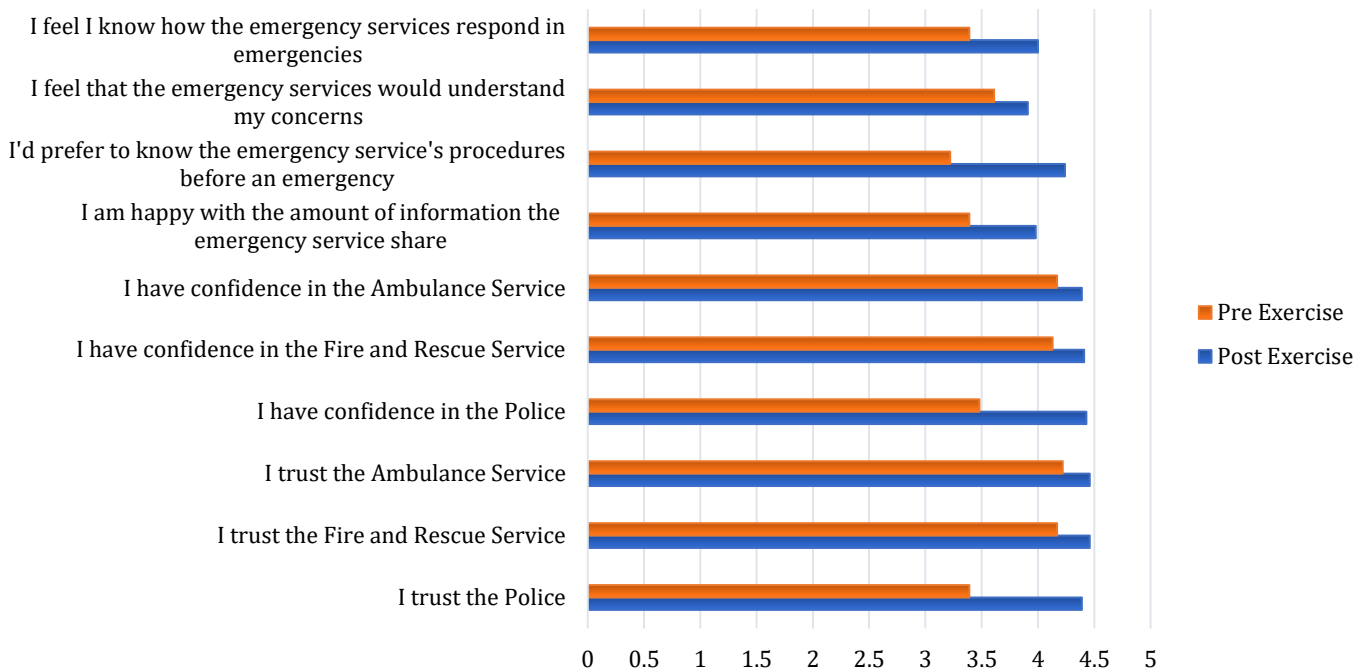


Figure 8: A comparison of the pre and post exercise public perceptions and preferences

was an emergency on the train and no emergency service but someone who said look I can help I know what I'm doing then...' [Line 1656]

Part B: The Police Service

Pre and post comparisons (see Figure 8) reveal that the Police were the agency that the public held the least amount of trust and confidence in but this increased post exercise. When asked to provide a justification for the scores given post exercise, common answers included: past and personal experiences, the organisations professionalism and also because they were working well on the day.

In the survey it was reported that the police were the agency who dealt with people the least; only 4 out of 48 people stated they were predominantly dealt with by the Police out of all three emergency services. It was found that the police are the least empathetic of all the blue light agencies but they scored relatively high on respect (see Figure 9). However, it is difficult to say this is representative due to the small number of respondents. Although, the lack of interaction between the police and the casualties did seem to be a common talking point in the interviews:

The police today I didn't really see at all today, I just saw them in the background, and I don't think they got involved in anything' [line 1427]

Part C: The Fire and Rescue Service

Trust and confidence was increased slightly post exercise for the Fire and Rescue Service (see Figure 8). Both pre and post exercise, people strongly agreed that they

could trust and have confidence in the service and gave reasons such as their professionalism, how efficient they are, their calmness and their helpfulness.

Out of 48 people, 10 indicated that the Fire and Rescue Service were the agency that predominantly dealt with them during the incident. Findings from scoring these interactions show that they score the highest out of all the agencies for empathy, privacy, dignity and respect (see Figure 9). Although they scored relatively high on all of these qualities, empathy was the one which received the lowest score. This is supported in the interviews as people insinuate that they did not seem to understand the position some people were in:

‘...it was all kind of strange really cos I got fireman’s boots in my face and they were kind of climbing over me and then trying to work out what they were gonna do so it was a good job I wasn’t in pain’ [Line 1376]

Part D: The Ambulance Service

Trust and confidence increased in the Ambulance Service following the exercise (Figure 8) and reasons given for these scores included good treatment given, their efficiency and helpfulness. There were also negative reasons given such as not taking the day seriously and, although contradictory, not treating people.

Furthermore, more than one third of all casualties, 20 out of 48, show that the Ambulance Service was the service that specifically dealt with them during the exercise. These 20 respondents rated the ambulance service as being high in privacy, dignity and respect, but not as high in empathy (see Figure 9). Furthermore, the ambulance service also scored the least for dignity out of the other 3 blue light agencies. This is supported to some extent in the interviews:

‘The people from ambulance service they took care of people who had bruises and nothing more and people with head injuries were waiting for hours with nothing’ [Line 1747]

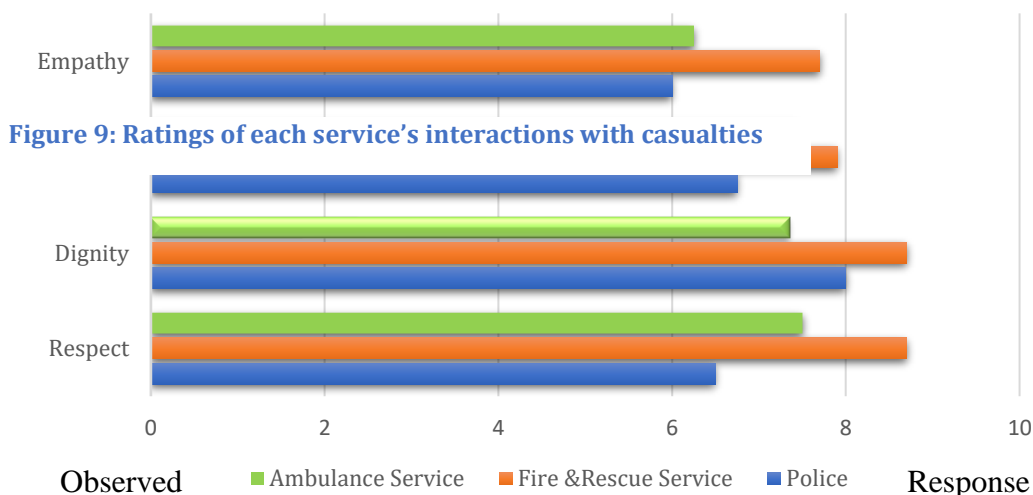


Figure 9: Ratings of each service’s interactions with casualties

3.

The aim of this subsection is to provide a deeper insight into how the public felt the operational response was conducted during the exercise. For clarity this subsection is split into observed joint working, response time and communication, as these were the three most common topics raised in both the surveys and interviews.

Part A: Observed Joint Working

Throughout interviews, casualties often brought up examples of how the emergency services were working together, some of which are positive, and some are negative:

'I think they worked together pretty well because the police worked well after we got off the train because they asked us some questions calmly and the ambulance and fire brigade worked well when they were getting us off the train and when they were asking us what serious injuries we had' [line 1107]

'Err it was very busy. I had the fire working on me screaming for a tourniquet, it must have been 15-20 minutes until it arrived. When the medic arrived, there was little communication it was yeah I've put the tourniquet on but no pulse rate or anything.' [Line 704]

Overall, casualties prefer to see the emergency services working together as they deem it necessary:

'... I think you need them all on call really to do all the things. You know you need your fire engine to get you out of place, your paramedics and I think yeah they work really well together' [line 391]

Furthermore, from the interviews it is also clear that it was mostly the Ambulance and Fire and Rescue Service working together with many casualties reporting not seeing the police. Some understand why the police were not as involved whereas others state that they should have been:

'Maybe a lot more from the police. I seen a lot of collaboration between the fire and ambulance and at one point one of the other patients started shouting at me because I had my wounds dressed and an ambulance man had to deal with that when in fact it could have done with more police presence' [line 909]

Part B: Response Time

The time people waited to be treated or rescued was brought up regularly throughout the survey and interviews. The serious implications of waiting for help were mentioned frequently in interviews with 'Amputees in Action':

'...I think after 1 hour, realistically you would bleed out in 4 minutes so yeah that's always disappointing. I can understand why it happens but it is always disappointing...' [Line 105]

'Yeah you're probably talking 4 or 5 minutes and I'm dead. So, think of the time it takes to get to the scene you don't want to waiting around for another half an hour.' [Line 497]

Most people understood that they would have to wait due to protocols, the seriousness of the incident and the safety of the responders. However, there were solutions provided by the majority of people who reported having to wait. The most recurrent suggestion was to inform casualties that help is on its way. In particular, casualties state they would prefer to receive an estimated time of arrival for help in order to keep them calm and reassured; it may also stop them panicking:

'... they could have said "you'll be out in 15 minutes mate" or something like...' [Line 236]

'Because they didn't say like inform us how long we are going to wait so we didn't know how long we were going to wait so...' [Line 1196]

'... make people aware that there will be someone to help but it's gonna be in x amount of time and if it's gonna be a bit longer have someone come back and say it but feedback.' [Line 1663]

Furthermore, if people have to wait for help but there are members of the public able and willing to help then, as many people from 'Amputees in Action' suggest, these people should be utilised. This could save lives in a major incident or can give the emergency services more time. However, in this exercise it was found that the emergency services did not exploit this opportunity; this did not bode well with people in interviews as waiting any longer could have killed people:

'... I was screaming at the guy please give me some tourniquets I can put them on these guys because I know you can't come in and get us yet so that's a negative point.' [Line 104]

'... [NAME REMOVED] was on my bus and he was playing uninjured, he was screaming out what do I do, tell me what to do and they didn't give him any instructions.' [Line 735]

Part C: Communication Preferences

A lack of communication was also mentioned throughout the surveys and interviews. It seems people would have preferred more communication to inform them of the situation, the procedures they were undergoing; even when unconscious:

'We're doing this, we're doing this, we're gonna move you in a minute, were gonna be back in a minute just keep conscious' [line 54]

'Always just reassurance, constantly. Even if they're unconscious, the last thing that goes is your hearing. People can be in comas they can hear people.' [Line 158]

People receiving adequate communication seemed to be feel more positively towards the person or agency dealing with them, and poor communication meant they did not feel as optimistic. This could have been due to feeling less uncertain and more reassured when the emergency services interacted with them. For example:

'...erm...the care from getting out of the train into that bit before you went to hospital, it was brilliant. Even though I was unresponsive they were continuing the talking.' [Line 294]

It was also reported that communication was focused between the emergency services and was not fed down to the casualties:

'Yeah but the paramedic and all the staff they are communicating very well but just not to the casualties. [Line 1153]

Overall, more communication in general would be mutually beneficial for casualties and responding agencies.

Appendix 15: Exercise Unified Response Report

Exercise Unified Response Casualty Report

Introduction: More than 1000 members of the public took part in Exercise Unified Response playing the role of casualties, family members or concerned members of the public. A number of these people volunteered to take part in University of Liverpool research following their participation in the exercise (See table 1.0 below for exact statistics). In order to gather their perspectives on a range of issues of relevance to the emergency services and major incident response planning, data was collected from surveys given out before and after the exercise as well as post exercise interviews carried out immediately after the role player left the exercise site. This mixture of quantitative and qualitative data was collected by a team of trained researchers who collated the data and analysed it in a number of ways afterwards.

Analysing this type of data to explore the wide and varied feedback provided can provide many benefits including understanding what perception of the emergency services the volunteers had before the exercise, seeing if there was any change in perception following the exercise, recognising how casualties want to be interacting with in such serious incidents and attaining feedback about the benefits and limitations of taking part in live exercises. It is rare that this type of feedback is gathered, even in live exercises, therefore making it novel and insightful.

Table 1.0: A Table to show information about the participants of this research

	Total Participants	Gender	Average Age	Occupation
Pre Exercise Survey	228	122 Females 106 Males	29 yrs. old	81 Students. 29 unemployed, 18 healthcare, 11 retail, 9 civil servant, 8 admin, 7 local authority, 6 education, 6 retired, 5 hospitality, 2 law, 2 military, 44 unknown
Post Exercise Survey	217	110 Males 107 Females	24 yrs. old	75 Students. 43 unemployed, 23 retail, 21 healthcare, 16 hospitality, 5 local authority, 3 civil servant, 2 admin, 3 education, 2 military, 25 unknown
Interview	185	99 Males 86 Females	28 yrs. old	Not Collected

This section of the overall report is based on the experiences of the people who played casualties in Exercise Unified Response. Currently there is a paucity of information on the public's perception of the emergency services and the actual response in a major incident. This subsection therefore addresses these gaps and identifies: the public's perception of the emergency services and local authorities as well as their overall

response to a large-scale incident. It will also highlight any differences in perception which occurred as the exercise progressed, before ending with recommendations.

An overview of the public’s perception of the emergency services and local authorities: The full results of the mean scores for both the pre and post exercise surveys can be found in Table 2.0. The scores show that there is generally a good perception of the emergency services and local authorities as the majority of scores are over 4 on a scale of 1-5 (*1 being strongly disagree, 5 being strongly agree*).

Table 2.0: Mean scores of all perception questions asked

Statement	Mean
I trust the Fire and Rescue Service	4.64
I think the Fire and Rescue Service generally do a good job	4.63
I trust the Ambulance Service	4.62
I would feel safe in the hands of the Ambulance Service	4.62
I have confidence in the Fire and Rescue Service	4.62
I feel the Ambulance Service generally do a good job	4.61
If I needed rescuing I'd feel secure knowing that the Fire and Rescue Service would deal with the situation well	4.59
I trust that the Ambulance Service would treat me correctly if I needed medical assistance	4.58
I have confidence in the Ambulance Service	4.53
I would comply with instructions given to me by the emergency services or authorities	4.46
If I needed help, I would feel reassured to see the Police	4.30
I believe the emergency services and local authorities provide a great service overall	4.23
I trust the Police	4.14
I think the Police Service generally offer a good service	4.12
I have confidence in the Police	4.08
I feel that the emergency services or authorities understand my concerns	4.03
I am happy with the amount of information the emergency services share with the public	3.90
I think the local authorities overall do a good job	3.57
If I was at a survivor centre, I know the local authorities would help me	3.55
I trust local authorities	3.52
I have confidence in local authorities	3.42

I would feel reassured being in the hands of local authorities	3.36
I think the emergency services and authorities need to do more training to improve their service	3.28
I know the emergency services and authorities are capable of looking after me if I need them	3.23
<i>I would not</i> feel very reassured by the Fire and Rescue Service turning up if I was really in trouble	2.37
<i>I would not</i> feel secure if I was being managed by the Police	2.20

The table shows how the public overall have the most trust for the Fire and Rescue Service, closely followed by the Ambulance Service. The Police are next followed by the local authorities, however none of the scores are below the half way point, indicating participants in this exercise all have a positive perception overall.

Comparison of pre and post exercise scores: The following results highlight differences in the public’s perception by comparing the pre exercise survey with the post exercise survey.

Overall Emergency Services (ES) and Local Authorities (LA): There were six questions that explicitly focused on how people’s perceptions of the emergency services as a whole (see Figure 1). Results show:

- There was a significant increase in people’s agreement to the statement relating to how capable the ES and LA are as the score increased from 2.3 to 4.2 post exercise meaning they went from disagreeing with it to agreeing with it.
- There was a significant decrease in the level of compliance people agreed to as it went from 4.6) to 4.3 post exercise; however over 4 is still a high score and shows that people do agree, just not as strongly.
- There was a stronger agreement to the statement that the ES and LA need to train more post exercise. There was also a minor decrease in agreement to the scores indicating that people believe the ES and LA share information and understand people’s concerns. However, all of these scores are non-significant and are over 3 that indicates they adequately agree with the statement.

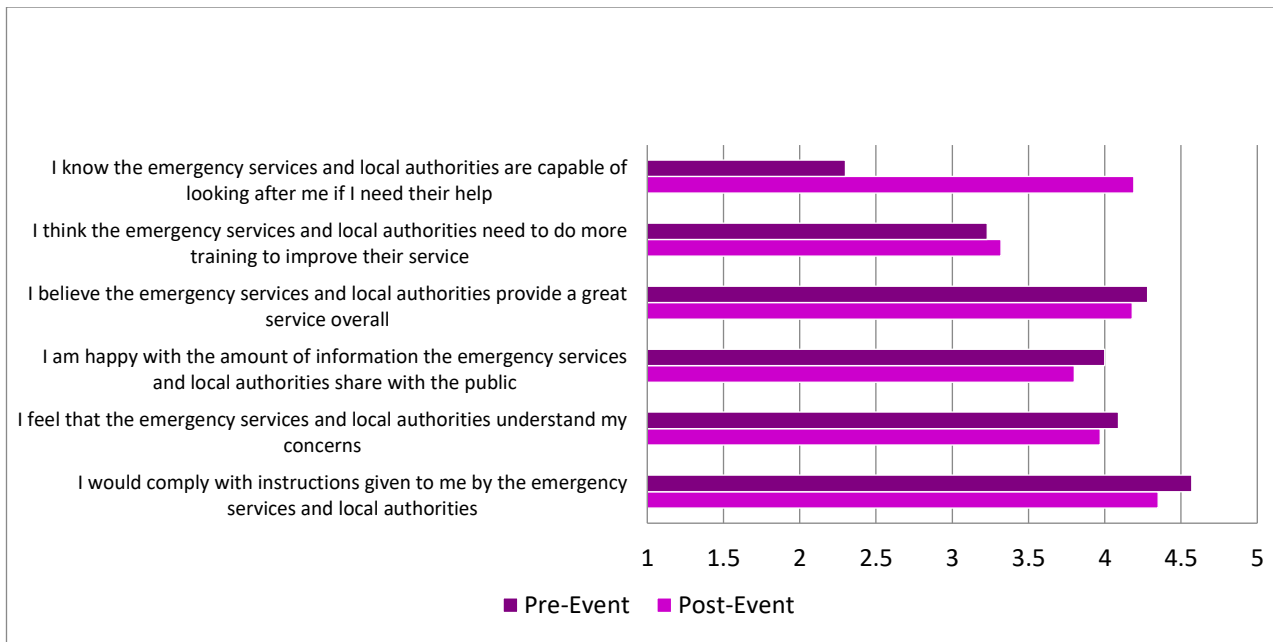


Figure 1: Perception comparisons of the emergency services before and after the exercise, ratings went from 1 (strongly disagree) to 5 (strongly agree).

Police Service: There was 5 questions that concentrated on the police service specifically (See Figure 2), findings show:

- There is a significant decrease in the 2 statements that relate to the Police offering a good service and feeling reassured by the Police. However, both of these scores still remain over 4 which indicates an agreement to the statement.
- There was no change in agreement to the statement of ‘I would not feel secure if I was being managed by the police’, this statement was negatively worded and so the score of less than 2.5 is a positive finding.
- The remainder of the findings show a very minor (less than half a point on a 5-point scale) non-significant decrease post exercise. However, all remain over 4 showing an agreement.



Figure 2: Perception of the Police Service before and after the exercise, ratings went from 1 (strongly disagree) to 5 (strongly agree).

The Fire and Rescue Service: There were 5 questions directly related to people’s perception of the fire and rescue service (See Figure 3), findings show:

- There was a significant decrease in 3 statements relating to the level of trust and confidence people have in the fire and rescue service as well as how secure people would feel with them dealing with a situation. However, all of these scores still remain close to 4.5, a strong agreement.
- There was also a non-significant decrease in the statement that asks if people think the Fire Service generally do a good job, however this is a minor decrease and the post exercise score is still over 4.5, therefore a strong agreement.

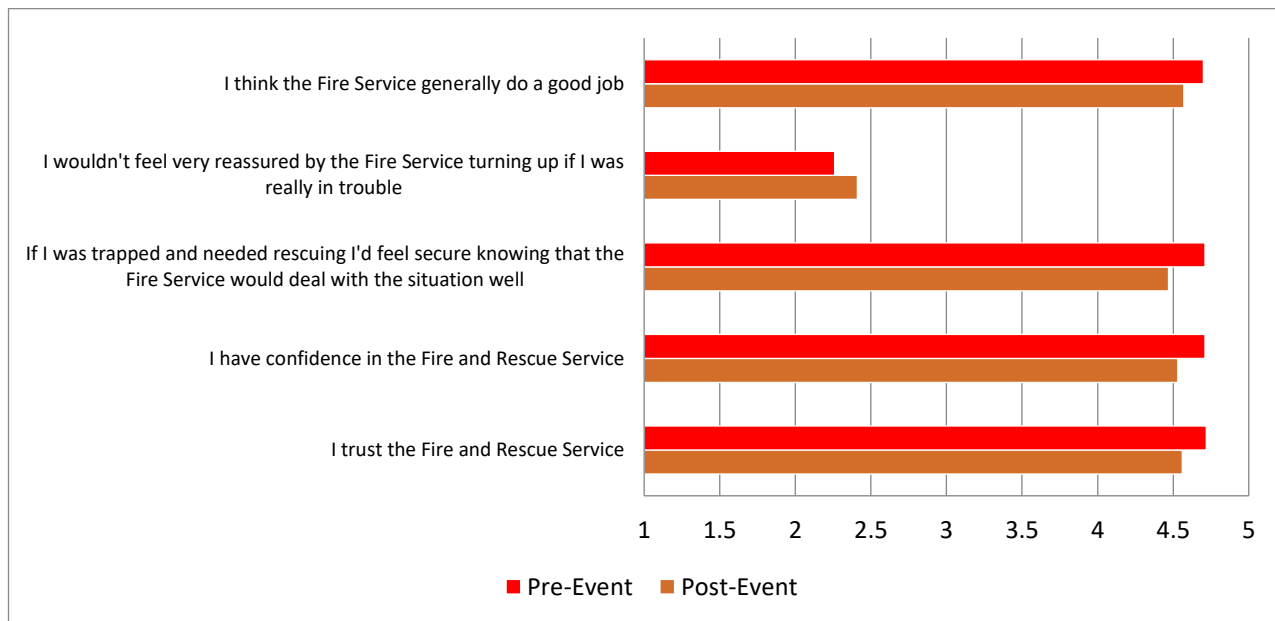


Figure 3: Perception of the Fire and Rescue Service before and after the exercise, ratings went from 1 (strongly disagree) to 5 (strongly agree).

The Ambulance Service: There was 5 questions in the surveys that asked about how people feel about the Ambulance Service (See Figure 4), findings show:

- All scores showed the smallest decrease out of all of the agencies looked at and none of the changes were statistically significant.
- This service scored the highest of all the agencies too as all scores, even post exercise remained around 4.5, a strong agreement.

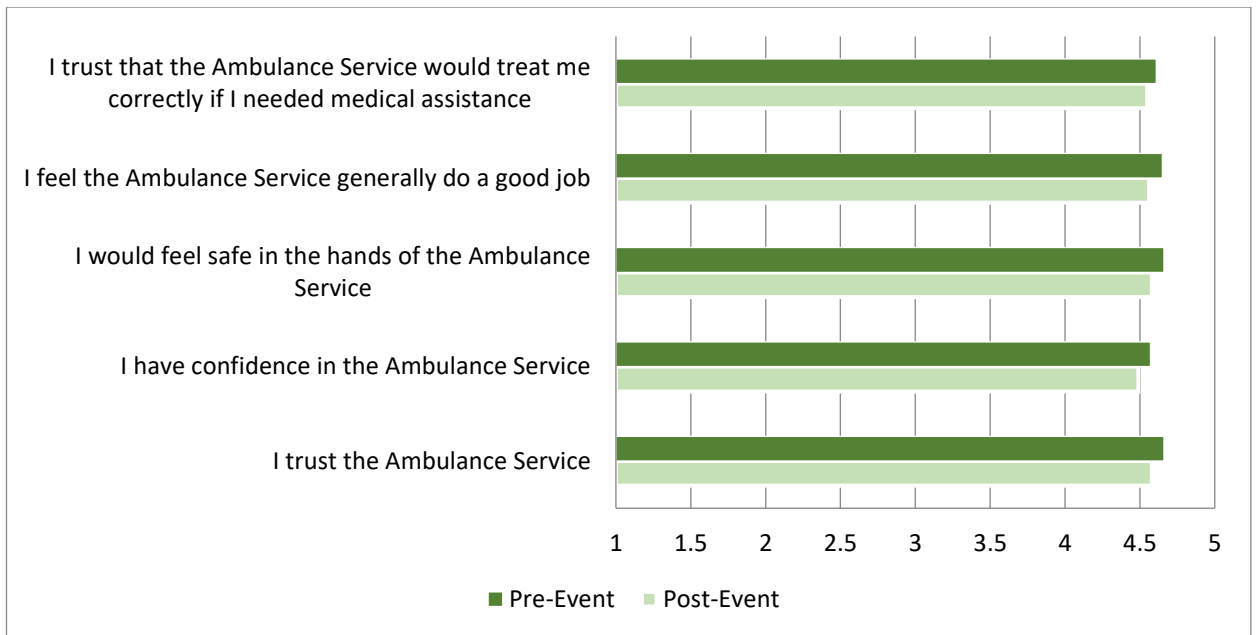


Figure 4: Perception of the Ambulance Service before and after the exercise, ratings went from 1 (strongly disagree) to 5 (strongly agree).

The Local Authorities: There was 5 questions that explicitly asked about people's perceptions of the local authorities (see Figure 5), results show:

- Although not significant, 2 statements that showed a minor decrease in people's scores that mean that people felt slightly less like the local authorities did a good job and less reassured in the hands of local authorities.
- There was also an increase in 2 statements meaning that people felt more like the local authorities would help them at a survivor centre and that they trusted the local authorities more.
- There was no change in the confidence people had in the local authorities. This agency overall scored lower overall than the emergency services, although all scores were over 3 meaning they agreed with the statements.



Figure 5: Perception of the Local Authorities before and after the exercise, ratings went from 1 (strongly disagree) to 5 (strongly agree).

Overall, reasons given for the scores on perception for all the emergency services were related to an appreciation of the difficult job they have, personal experiences people have had or media stories; post exercise reasons given included seeing them work well during Exercise UR. Although a similar rationale was given for the local authorities this also included the reason of being unsure of their role.

Public Perception of the Response across the exercise: How people felt about the response was mainly revealed in the 185 interviews which were carried out as they asked for people's observations and opinions about the response, some results come from the surveys completed post exercise too.

Physical Challenges:

One question on the survey asked casualties what was most challenging about their experience and initially the answers given focused on the physical conditions during the exercise, e.g. the tube being extremely cold or feeling hungry throughout. Other casualties expressed their impatience at waiting to be rescued as they were not sure when it was they would be rescued. Furthermore, there were a few responses from people who found it difficult to communicate with responders about their medical conditions, partially due to the briefing they had received prior to the exercise.

The follow up question to this was how these challenges could be overcome. For the first few days answers included practical solutions (e.g. providing blankets, snacks, hot drinks); however, as the exercise progressed, and the realism of the exercise was understood some casualties suggested improved communication. Communication could be utilised by telling people that they will be rescued, providing reassurance and also by being clearer to all casualties and using a loud speaker. This then alleviates the anxiety they were experiencing whilst being cold, hungry etc.

Interoperability:

One positive point made frequently throughout the interviews was how well the different emergency services worked together, during the first few days people gave examples of this interoperable working:

Casualty: So my point of view they worked perfectly well, as I mentioned earlier the fire men were clearing up the debris, putting up the beams and then paramedics would come rescue us and then the police would carry us away up the stairs to the, to the hospital, the emergency hospital then we got treatment by the ambulance.

Casualty: Well they worked together which was interesting, instead of just working, when they were moving people erm somebody said we'll move them they said no we won't we'll have two of us lot from the search and rescue team along with two paramedics rather than four paramedics moving somebody, we'll work together...so they can move the people which was good erm and they were just, they were talking to each other...so yea it was very good.

During the last few days this changed slightly as people commented on how the arrival of the international teams seemed to slow down progress and made it difficult for responders.

Casualty: I think there was a big language barrier between erm I think it was the Italians at the time and the English when there was about 10 people working on this one guy that just needed to get out and he was a bigger guy but it just needed one team leader and they weren't understanding each other, one was doing one thing the other ...so it wasn't very much communication but I think that was because of the language barrier and there wasn't a lead...

Language Barriers:

The language barriers between the international teams with the UK teams were not the only issue as this also became a challenge to most casualties as they did not get the information or reassurance that they required. Understanding the problems people had with this is especially important as the UK's ability to receive mutual aid was one of the objectives (Objective 2) set out in this exercise.

Casualty: I think they did really well. I think the only hiccup was that erm the fire and fire service erm had issues with speaking English so it was the translation error which kind off delayed our actual location erm and also I think from a patient point of view when I was with all the Cypriots for (xxxx) long period not many of them spoke English so if I'd been conscious it would have been less reassuring than if I'd have somebody talk to me

Casualty:-I preferred the English coz I knew what was happening coz they told me everything that was going on what was going to happen next as well so...

This is something which should be considered when activating mutual aid, ensuring they can communicate with casualties, again this is listed as an objective for this exercise (objective 1). Solutions people suggested for this issue included having universal commands or some form of buddy system where international responders team up with an English-speaking responder.

However, not everybody believed this to be a problem as one team managed to make themselves understood:

Casualty: erm well it was an Hungarian rescue team that erm did the rescuing so they didn't speak that much English but they definitely made themselves understood you know sort of gesturing or simple words

Communication Barriers:

Communication in general, even from English speaking teams could also have been improved according to the interviews. The type of information people wanted to receive more was practical information such as what they were doing, why they were doing things and what was going to happen next, again this would reduce any anxiety and uncertainty:

Casualty: Hmm maybe a little bit more on 'okay we're going to get you, we're getting you out next, we're getting you out next' that sort of thing because a lot of the time it was kind of 'ooh what's happening', 'what day are we going' and then they'd go 'erm you, we'll take you' so if there was a little bit more of 'it's okay we're going to get everybody out, we'll get these people out first, then ...

Casualty: I think the biggest most important thing for this is if someone if a casualty asks you a question and you tell them you're going to get back to them in a minute you do because the biggest stress is not knowing what's going on.

Learning outcomes:

When asked what people learnt from taking part in this exercise there were a lot of responses that said they now have a better understanding of how the emergency's services work in major incidents and also the complexity and organisation needed to be able to respond to such large-scale incidents. There were also a lot of people who realised that it actually takes time to rescue people and also realised that it would not be as fast as they first thought, the ambulance service triaging people for example. This realisation of the time meant that people felt they learnt to be more patient as well as what is more realistic in a real incident.

Other people stated that they learnt the importance of communication in this exercise, this goes back to the point made previously of how communication can help people cope while waiting as they may feel better being acknowledged and informed. This type of communication would also reassure people as they will know that they haven't been forgotten. To highlight this point, in response to the question '*How would you say the different agencies that are involved can improve your trust in them?*' one person answered:

Casualty: I think it's just more communication err personally for me it's more than communication, basically just making sure people know what's going on, how long things are gonna take, don't worry helps coming you know, we need to do this first...this is why it's taking time coz we need err to like cut a hole in a door or something just reassuring people that we haven't forgotten you that this why it's taking time to get you out coz we need to make the place secure that sort of thing and just continuing talking to people really...

Recommendations:

Maintain the level of trust and confidence. Overall scores on trust and confidence in the emergency services and local authorities as a whole and individually were all really high both before and after the exercise. Most scores on trust and confidence did slightly decrease post exercise however most of these changes were minor and statistically non-significant. This shows that overall people have a good perception of the emergency services and local authorities, which should be maintained by doing what they are doing and implementing the changes suggested below.

Improve communications. Communication is the key to people having trust and confidence in the emergency services as it often came up as a suggestion in interviews and on the surveys. Good communication means people are informed and feel reassured. Communications should be clear and consistent, so everybody receives the same information and the same level of communication.

Acknowledge the people waiting. There was also a realisation that casualties require patience as the nature of the incident meant people had to wait longer to be rescued. Patience from people can easier be achieved by acknowledging people and informing them of the wait, providing a rationale and perhaps throwing around blankets to people waiting if you cannot treat them and/or rescue them for a certain amount of time.

Include more people in these exercises. There was also a general issue of raising awareness about the complexity of these incidents. People suggested that more exercises are run as it will allow more members of the public to safely observe the services in action and to understand what happens in a major incident.

Appendix 16: Merseyside Resilience Forum 6-month review report

MERSEYSIDE RESILIENCE FORUM: 6-month review

|| May 14, 2015

2. OVERVIEW

5. Project Background

This project is part of an ongoing collaboration between the Merseyside Resilience Forum (MRF) and the University of Liverpool (UoL). The first stage of this collaboration was to carry out focus groups prior to the Merseyside Prepared website being launched. The second part of this project is to attain further feedback from the public 6 months after the website went live and to gain a richer account of people's awareness levels and perception of risk information. This will be carried out by further focus groups and a public survey.

6. Participants involved

In order to get a representative sample of the local population, both males and females of various ages and occupations were asked to participate in both the website and surveys. See below for further details on who took part.

Table 1.0: Participant Information

	Total respondent	Mean Age (yrs.)	Employment status
Focus Groups	16	28	10 employed, 6 students
Survey	121	36	53 employed, 17 students, 12 unemployed, 6 retired, 33 unknown

7. Focus Group Findings

People's suggestions which have come from the website are summarized below under the relevant headings:

Home page and about us page

- Consider splitting up the logo to make it an icon for each page
- Slow down the moving banners, make the writing on them consistent, remove links on them to external pages and put the news stream on top of the banners, instead of at the bottom
- Re-phase the section named 'exercises' as it is not clear what it is to some people
- Make the MRF structure clearer and less 'university style'

News

- This should be one step further than other news by providing tips on how to prepare and what to avoid e.g. there's been an accident in the snow- avoid this road and drive carefully
- Each story should only have the headline and a photograph so people can choose to click and read it. Possibly show a most read story and an option to share item on social media sites

Risks

- Use previous examples from Merseyside to explain risks e.g. high winds and Runcorn Bridge
- Give more statistical and information e.g. there are x many Ebola cases in Merseyside
- Use real photographs of Merseyside which people can relate to

Events

- Have a calendar of events and include a note saying check next month if there are no events
- Instead of just advertising events, link them to risks e.g. giants are arriving so there are road closures. This will enable people to prepare for events and to make alternative arrangements
- There should be warnings of ongoing road works and train station closures as well as events and more friendly cautions for events such as football matches in Merseyside

Protecting your home and your community

- Have less of what risks there are and more of what how to prepare for the risk e.g. some checklists for people so they can see what they need to do or how they can help themselves
- Have separate information for each different community e.g. St Helens and Liverpool
- Have more information on how to protect your community e.g. warn neighbours
- Have community forums so people or agencies can post warning messages e.g. there have been a spate of car robberies or wheelie bin fires. This is something common on Facebook

Kids Zone

- Make this a parent's zone instead as it is not interactive enough for children.
- Put all the sheets and quizzes in a resource section which parents can download

Overall

- More Merseyside specific information and photographs with less generic information, less links to external websites, less blank spaces and format text wisely (e.g. FAQ page) so people can choose what to read

Additions/Ideas

- More fact file style information
- Add alerts and short warning messages on other pages e.g. have you got your grab bag?
- Add a 'request a call back' feature for people who do not wish to email
- Add forums to make it more interactive or quizzes with an option to post to social media
- Audio version for the visually impaired
- A sign-up page for newsletters or emails
- Videos to teach people first aid
- Monthly Polls to gather information which will be useful for the organisations
- A suggestion box where people can write what they would like to see

Ideas for a potential app

- Needs to be a mobile version of the site, maintained with the website and the social media sites using consistent symbols and make accessing information shorter and faster
- Provide a time that it was last updated so you know if your accessing more recent information
- It should have a live feed, updates and local information on what's going on in your area
- Allow different options for each area or each group so people are getting tailored information
- GPS style help e.g. nearest Kwikfit, nearest Cash machine
- It should give traffic updates similar to the radio and where to avoid
- Make use of the notifications e.g. Giants are here today, avoid Edge Lane traffic
- Put the contact numbers on there so people can dial them from their mobile
- Have it as a neighbourhood watch where people can help each other
- Have it as a place to find a safe taxi in Liverpool e.g. UBER taxi's
- Use it as a place where emergency services can find your ICE number (In case of emergency number), possibly allowing them access to it when the phone is locked

Positive comments made

- The cybercrime pages are informative and updated
- The contact numbers page is popular
- The FAQ, the news and the translation sections are all good features to have

- The weather and flood warnings at the bottom of the home page are good features
- The fact that have the website and social media is good and the website looks professional

8. Survey Findings

This survey included 23 questions in total (some were optional questions), with the view to findings out about people’s level of awareness, perception of receiving risk information and future preferences for receiving information. Questions and statistical findings are summarized under the relevant headings below.

Awareness levels

The survey asked people about what their current level of awareness is and as results have shown this was reasonably low with the majority of people being unaware of the Community Risk Register (CRR), evacuation plans or what to do if an emergency occurred. People also reported receiving no information. However, this was a small number of people in comparison to the population size.

Question:	Answer:
Are you aware of what to do if an emergency occurred in your area?	88% = no (number of respondents [n]=72) 12% yes (n=10)
Are you aware of any evacuation plans?	100% = no (n=82)
Are you aware of the CRR?	88% = no (n=72) 12% yes (n=10)
Are you aware of any advice given?	9% = yes (n=7) 91% = no (n=74)
What information do you currently receive?	63/68 said none.
Statement: I am given enough information to be prepared for possible local emergencies	Average score=2.59 (n=69) Where 1= strongly disagree, 10= strongly agree

Perception of information

The responses to this question were mainly positive with many people stating they want to know more information, believing this information is beneficial and that more information would reassure them. Half of the respondents believe that information would reassure them as it would enable them to prepare and be self-sufficient; others believed it would be reassuring to know what emergency plans are in place and a small number of people, 3, report it reducing panic.

Question:	Answer:
Statement: I want to know more information on how to be prepared for possible emergencies	Average= 8.94 (n=69) Where 1= strongly disagree, 10= strongly agree

Statement: I believe it would be beneficial to give the public more information about preparing for emergencies

Average= 9.04 (n=69) Where 1= strongly disagree, 10= strongly agree

Do you feel having more information about how to prepare for emergencies would reassure you or concern you? And why?

53/56 said reassure, 2/56 said unsure and 1/56 said panic

28/56 = it would enable them to prepare, be self-sufficient and in control, 5/56 = to know that procedures are in place by the authorities and 3/56 said it would reduce panic

Preferences for information

The questions which asked about preferences for information revealed that people want information on how to prepare, the plans and procedures in place, contact information for agencies and others state anything they can give. The most popular format which people want to receive this information is either via a leaflet or newsletter or online via a website.

Question:

Answer:

What information would you like to receive?

18/59 what to do and how to prepare, 17/59 emergency plans and procedures, 16/59 anything they can give, 6/59 contact information for local agencies and 2/59 said nothing

In what format would you like to receive this information?

40= leaflet/ newsletter, 35= online/ website, 10= email, 4= social media, 4 = any/all, 1= TV, 1= none

9. Overall recommendations

- As discussed previously the public's awareness level of risk information needs to be raised. This could be done by further promoting the website, the register and what the resilience forum is.
- Be open and honest in communications in order to increase people's perception of receiving risk information and it is always beneficial to listen to their preferences as it promotes trust
- Make people aware that they are responsible for their safety too, explain the benefits of being prepared but ensure that information tells people how to prepare and not just what the risks are so people know how to be self-sufficient.
- Include information which is relevant to them and which they can relate to as people are more likely to believe that something may happen and may take steps to prepare.

10. Future Research

As discussed previously, this research only uses a small sample in comparison to the population of Merseyside and so more research does need to be carried out in order to gain a better representation of the views the public hold with regard to the website, their preferences of risk information and how people can become prepared. It is also important to find out the views and perception of people responsible for

communicating risk information, namely the resilience forum members and so further research needs to be undertaken on this group of people.

11. Contact Information

For further questions or enquires please contact the researcher involved:

Lauren Swan: hllswan2@liverpool.ac.uk

Alternatively you can contact Lauren's supervisors, Professor Laurence Alison: alisonl@liverpool.ac.uk or Dr Sara Waring swaring@Liverpool.ac.uk