

Centre for International Health

**Using explicit knowledge models and best practice guidelines to
improve humanitarian outcomes through the development of a
knowledge tool for international health workers**

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**This thesis is presented for the Degree of
Doctor of Philosophy
of
Curtin University**

January 2016

DECLARATION

“To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university”. If the thesis is resubmitted, this Declaration shall be reprinted and signed and dated with the date of resubmission.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007), updated March 2014. The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Number # HR CIH-05-2010

David John Overlack

A handwritten signature in black ink, appearing to read 'D. J. Overlack', written in a cursive style.

Signature:

Date: 15/01/2016

“The failure to generate and use evidence in policy and response makes humanitarian action less effective, less ethical and less accountable”

(Knox Clarke & Darcy, 2014, p.5)

“Rapid advances in the ability to gather, collate and analyse information offer a remarkable opportunity to target humanitarian response more effectively than at any time in history”

(OCHA in 2012 and 2013, p.3)

“The international humanitarian community’s ability to collect, analyze, disseminate and act on key information is fundamental to effective response”

(Mahmood, Ngom, Delargy, Tambashe, Jongstra & Oussein, 2010, p.84)

Acknowledgements

This research was conceived from the many difficulties of working in complex humanitarian environments and natural disasters. So with this in the forefront of my mind I would like to express my deepest respect for all people who strive to make this world a better place. For those individuals who place themselves at the vanguard of humanitarian action and strive to meet the needs of vulnerable populations with dignity and compassion, you are my inspiration. The world is a much richer and profoundly better place because of you.

For the victims of violent conflict and natural disasters this research was undertaken so that humanitarian health aid workers would have better tools to make informed decisions to meet your needs, quickly, appropriately and with dignity. We will not give in, nor will we retreat.

I would like to thank my supervisor Professor Jaya A R Dantas (aka Jaya Earnest). She has been a constant source of support. Her kind encouraging words have been at times the rope with which I needed to pull myself up and keep moving forward.

I would also like to thank the Red Cross movement. I truly believe the tireless and voluntary work being undertaken by all Red Cross workers is the very glue by which humanitarian action is held together.

It is also important to acknowledge those individuals who gave their time and insight into this research. To all those respondents, thank you very much.

Finally without the support of my family, Michelle, Chloe, and Matthew this research would not have been completed. Thank you so much for your patience, love, and the many cups of tea (with the odd slice of cake). You are my world.

Dedication

To Michelle, my beautiful partner, thank you for giving up so much and not giving up on me

To my beautiful, funny, and brutally honest children, Chloe and Matthew, thank you for giving up so many weekends and holidays. I am looking forward to making it up to you

To Brian and Kay Olsen, thank you for your support and always being there when needed

Abstract

Humanitarian aid has a long history of providing a wide range of interventions to improve the welfare to victims of violent conflicts and natural disasters. One of the first international humanitarian organisations, the International Committee of the Red Cross, created in 1863, provided the foundation for humanitarian action through its core principles. Four of these core principles are now the structural pillars of modern humanitarianism: humanity, impartiality, neutrality and independence. Today the Red Cross movement has a global reach and is an integral part of international humanitarian action.

Developments in communication technologies have brought home to a global audience the tragic and devastating impacts of natural disasters and violent conflict. Contemporary humanitarianism is experiencing persistent challenges and undergoing changes in how humanitarian organisations engage and the type of activities they undertake. Advances in digital information technology have seen non-humanitarian spheres of practice engage in the collection and provision of data and information during natural disasters. Mobile communication platforms are now providing real-time interaction between victims of natural disasters or violent conflict to the global community. How humanitarian organisations use this data and information is an important challenge. Although there is a better understanding of the weaknesses in the humanitarian system, there remain significant gaps in the way in which data, information and knowledge is collected, analysed and used.

This study attempted to improve the ability of health delegates to function across the wide spectrum of humanitarian environments by improving access to appropriate explicit knowledge-based resources necessary to make accurate informed decisions. A mixed-methods design integrating a survey questionnaire and semi-structured interviews was employed for this study. Study participants were recruited from the International Committee of the Red Cross, the International Federation of the Red Cross and Red Crescent Societies, and the Australian, British and Canadian Red Cross national societies. Three respondent groups were identified: headquarter staff, experienced health delegates and general health delegates. Data was collected from 86

respondents. Fifty nine general health delegates completed a self-administered questionnaire whilst key informant interviews were conducted with 21 headquarter staff and six experienced health delegates. Data collected from these interviews provided more in-depth contextual content and understanding around attitudes towards knowledge management practices, and how they accessed and used knowledge-based resources in their decision-making processes. The collection of qualitative data from these interviews provided different operational perspectives around the provision and use of knowledge management processes and resources.

This study found that there is a clear need to improve knowledge management practices at both the organisational level and by humanitarian health practitioners. The attitude and culture of headquarter staff in the provision of appropriate knowledge resources to health delegates contributes negatively to their ability to access and use appropriate resources in the field. Furthermore, health delegates' abilities to make informed decisions using relevant peer-reviewed standards of practice are restricted. This study also established that although humanitarian organisations are exhibiting more professionalism in their activities, there is still a clear lack of practice standards for health delegates. Published humanitarian standards and practice guidelines are not compulsory or enforced and currently there are no ongoing competency requirements, continuous professional development requirements, or a humanitarian based health registration system.

The outcome of the study was the development of a Portable Reference Tool. This tool was developed from the data and recommendations of the study respondents. It will provide health delegates with the ability and resources to access a wide range of peer-reviewed knowledge-based resources, enabling decisions to be based on appropriate and recognised evidence based practices. The study proposed that humanitarian organisations improve their knowledge management systems to better support health delegates on mission. Finally it was recommended that humanitarian organisations adopt a fully professional approach to humanitarian practitioner engagement that mirrors the same standards of practice and registration requirements that health professionals in developed countries adhere to.

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List of Abbreviations

ACAPS	Assessment Capacities Project
ALNAP	Active Learning Network for Accountability and Performance in Humanitarian Action
ARC	Australian Red Cross
BRC	British Red Cross
CDC	Centers for Disease Control and Prevention
CDSS	Clinical Decision Support System
CE-DAT	Complex Emergency Database
CHE	Complex Humanitarian Emergencies
CRC	Canadian Red Cross
CRED	WHO Collaborating Centre for Research on the Epidemiology of Disasters
CIA	Central Intelligence Agency
CMR	Crude Mortality Rates
DMIS	Disaster Management Information System
DSS	Decision Support System
EBM	Evidenced Based Medicine
ECOSOC	United Nations Economic and Social Council
EM-DAT	Emergency Events Database
EOM	End of Mission
ENN	Emergency Nutrition Network
ERU	Emergency Response Unit
FACT	Field Assessment Coordination Team
FEMA	Federal Emergency Management Agency (United States Government)
GDP	Gross Domestic Product
GHD	Good Humanitarian Donorship
GIS	Geographic Information Systems
GPS	Global Positioning Systems
HAP	Humanitarian Accountability Partnership
HD	Health Delegate
HDX	Humanitarian Data Exchange
HIME	Humanitarian Information Management and Exchange

HPN	Humanitarian Practice Network
IAM	International Assistance Mission
IASC	Inter-Agency Standing Committee
ICISS	International Commission on Intervention and State Sovereignty
ICRC	International Committee of the Red Cross
IFRC	International Federation of Red Cross and Red Crescent Societies
IHL	International Humanitarian Law
INGO	International Non-Government Organisation
LLD	Lessons Learned Documents
MDGs	Millennium Development Goals
M&E	Monitoring and Evaluation
MSF	Medecins Sans Frontieres
NATO	North Atlantic Treaty Organisation
NGO	Non-Government Organisation
NS	National Red Cross and Red Crescent Societies
OBE	Overwhelmed By Events
OCHA	Coordination of Humanitarian Affairs
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OODA	Observe, Orientate, Decide and Act
PAHO	Pan American Health Organisation
PDF	Portable Document Format
RDRT	Regional Disaster Response Teams
RC	Red Cross
PRT	Portable Reference Tool
RSS	Rich Site Summary
SMS	Short Message Service
UN	United Nations
UNAMA	United Nations Assistance Mission in Afghanistan
UNEP	United Nations Environment Program
UNHCR	United Nations High Commissioner for Refugees
WASH	Water, Sanitation and Hygiene
WFP	World Food Program
WHO	World Health Organisation

Definitions

Culture:

A people's ways of being, knowing, and doing; all the knowledge and values shared by a cohesive group or organisation; the attitudes and behaviour characteristics of a particular social group or organisation; the accumulated habits, attitudes, and beliefs of a group of people that define for them their general behaviour and way of life; the total set of learned activities of a people; the beliefs, traditions, habits and values controlling the behaviour of the majority of the people in a social-ethnic group, including the people's way of dealing with their problems of survival and existence as a continuing group (Dalkir, 2005, pp.332).

Data:

Directly observable or directly verifiable facts; decision tree; a technique for organising knowledge that devise sets of elements into subsets such that each node has only one "parent" based on discriminating evidence provided by attributes and their values (Dalkir, 2005, pp.333).

Experienced Health Delegate:

For the purpose of this research an experienced health delegate is a humanitarian health worker who has completed six or more overseas humanitarian missions with a humanitarian organisation.

Health Delegate:

A humanitarian health worker who is currently or who has completed an overseas humanitarian mission with a Red Cross national society, the International Committee of the Red Cross, or the International Federation of the Red Cross or Red Crescent Society.

Information:

Analysed data—facts that have been organised in order to impart meaning (Dalkir, 2005, pp.335).

Knowledge:

Subjective and valuable information that has been validated and that has been organised into a model (mental model); used to make sense of our world; typically originates from accumulated experience; incorporates perceptions, beliefs, and values (Dalkir, 2005, pp.336).

Knowledge Management Framework:

The deliberate and systematic coordination of an organisation's people, technology, processes, and organisational structure in order to add value through re-use and innovation. This value is achieved through the promotion of creating, sharing and applying knowledge as well as through the feeding of valuable lessons learned and best practices into corporate memory in order to foster continued organisational learning (Dalkir, 2005, pp.337).

Chapter 1: Introduction and Overview

1.0 Introduction

This research makes a contribution to humanitarian health practice by first, identifying current limitations in knowledge management practices and second, identifying how adoption and use of current technologies and peer-reviewed standards of practice can enhance the decision-making processes of health delegates. In particular, this research examines how knowledge management practices are viewed and applied by both humanitarian health professionals whilst on and between missions, and operational headquarters-based staff. The results of this study are applied to the design of a Portable Reference Tool for use by health delegates.

This chapter provides an overview of the thesis, commencing with the rationale for the examination of knowledge management practices from this researcher's own professional humanitarian health experiences. A brief background in the changing nature of humanitarian practices is discussed. The outline of the aims, objectives and methodology of the study is described. A summary of the key findings, their significance and limitations is then presented.

1.1 Rationale for the Study

My first experience providing health care in a complex humanitarian environment was in 1997, as a member of the Peace Monitoring Group in Bougainville, Papua New Guinea, with the Australian Regular Army. As part of our role we provided health services to the general indigenous population out of the laundry area of the local hospital as most other areas had been burnt down during the conflict. We used the standard local health guidelines given to us by the local health authorities to identify and treat common illnesses. This system worked well especially as some of the illnesses seen such as tuberculosis, malaria, and leprosy were not common place in Australia. Diagnosis and treatment of illnesses was a simple process of following the standard medical guidelines provided by the local health staff.

After returning to Australia my desire to continue working in difficult and complex humanitarian environments led me to take up a role as a health delegate in Afghanistan with the International Committee of the Red Cross (ICRC) in 1998. Since then I have worked in Sierra Leone, Sudan, Pakistan, and a second mission in Afghanistan with the ICRC. Furthermore I have worked in Vanuatu, Sri Lanka and Ethiopia with the International Federation of Red Cross and Red Crescent Societies (IFRC) as well as Fiji, Niue, Sudan, Sri Lanka and Indonesia with the Australian Red Cross (ARC). Duration of these missions has been between 4-8 weeks for natural disaster emergencies and up to 12 months for complex emergencies.

With these experiences my role as a health professional has changed many times according to the operational environment, changing context, and professional responsibilities I have been asked to fulfil as a generalist health delegate or program coordinator. Working in complex humanitarian environments with the ICRC, natural disasters with the IFRC or a combination of both with the ARC, has provided unique and professionally challenging situations outside the scope of normal nursing practice. With the ICRC my roles have included that of a generalist health delegate, project manager, nurse anaesthetist, detention doctor, logistics coordinator, and administrator.

As a generalist health delegate I managed hospitals, health and first aid posts, and conducted hospital and primary health care facility assessments as well as general in-depth health assessments on mobile and internally displaced populations. A large part of the role of a health delegate, regardless of the position, requires providing health-related education and teaching to local health staff. I have treated gunshot wounds, landmine and blast injuries, other combat related injuries as well as injuries inflicted on civilian populations by hostile armed groups such as rape, torture, and indiscriminate shooting. I have been required to give anaesthetics for women needing urgent lower segment caesarean sections and other surgical emergencies because of the lack of appropriate personnel and—on one particular occasion—due to the nurse anaesthetist walking out midway through an obstetric procedure and not returning to the theatre.

As part of the IFRC's Field Assessment Coordination Team (FACT), both as a generalist health delegate and as a team leader, I have been required to undertake rapid

health assessments and coordinate appropriate international responses for large scale natural disasters. Working for the ARC has required me to undertake health and general assessments of populations affected by a variety of natural disasters in international settings.

The knowledge and skills required to perform such tasks are extremely diverse, requiring a varied and broad skill set and an extensive knowledge base. Operational necessity often requires workers to step outside of their role to undertake different roles with broader responsibilities. The common thread through my years of working in these difficult environments has been the absence of quality and timely information and access to a wide range of appropriate reference resources. These include standard antibiotic regimes, diagnostic indicators, public health guidelines, disease protocols and standard assessment methodology guidelines to legal contracts for the hire of buildings, staff recruitment, and memoranda of understandings with health ministries.

Whilst there is a plethora of information available from a myriad of sources, such information and reference resources need to be accessed quickly and be easily transportable in complex humanitarian emergencies and natural disasters. Travel logistics restrict a humanitarian health worker to taking only what is needed; that is, the airline's luggage allowance. Once on-site, operational requirements often necessitate mobility of action and the need to access necessary references or guideline information to make appropriate informed decisions. Technological advances in accessing and retrieving large quantities of appropriate and targeted digital information have changed how data is collected, analysed and used to make informed decisions. But even technology has to yield to reality. In Ethiopia the FACT had trouble using satellite communication equipment for large periods in the afternoons due to very heavy rainfall and low dense cloud cover. In Afghanistan, Sudan and Sierra Leone the ICRC was hampered by limited or slow and, at times, nonexistent access to the Internet.

Motivation for the research arose out of the complexities of roles I have undertaken with the ICRC, IFRC and ARC. Having access to appropriate information and necessary clinical reference resources in-country or being able to source information through the World Wide Web has been difficult to non-existent. The need to collect

appropriate data, to base decisions on peer-reviewed standards of practice and provide medical and surgical care based on accepted standards of professional practice is paramount in driving improvements in humanitarian action. The use of appropriate explicit knowledge sources can improve our level of practice, but more importantly, improve the quality, effectiveness and efficiency of humanitarian interventions to vulnerable populations.

1.2 Background to the Study

There is no doubt that humanitarian organisations and humanitarian activities have undergone rapid change. The integration of development activities, now considered a key pillar of humanitarian practice, has strengthened both disaster mitigation programs and long-term recovery projects. Long-term development programs are viewed as a contributing mechanism to enhance peace building projects and reduce violent conflict (Collison, Elhawary & Muggah, 2010). Humanitarian organisations are now engaging in a wider spectrum of activities once regarded as the sole provision of “nation states” (Uvin, 2002; Barnett & Weiss, 2008, pp.8-9). Humanitarian funding has increased overall, as has the push for more accountable and transparent mechanisms in the way in which it is allocated.

Advances in information technologies have provided an increasingly connected global audience with a front row seat to the tragedies of disasters and the horrors of violent conflict. The spread and availability of the World Wide Web has changed the way we are able to access information. Both mainstream and social media platforms are providing real-time information from natural disasters and violent conflicts. These technology platforms are being used by organisations, governments and terrorist groups alike.

Websites that provide for specialised and mainstream areas of professional practice provide individuals and organisations with the ability to access an increasingly wide range of knowledge-based resources. Peer-reviewed publications, evidence based practice guidelines, and clinical practice and discussions networks are now easily accessible from home, the office, or while travelling. Mobile platforms such as phones and computer tablets allow people to be permanently connected to the digital world.

The development of the iPad¹ and subsequent introduction of similar digital devices has been a rapid transformation in the way we are able to access and use information. Large amounts of digital data, once loaded, are able to be stored and easily accessed without being digitally connected. For health professionals the ability to access and use recognised peer-reviewed standards of practice, clinical reference resources and other professional documentation is now a simple process.

Such technology is driving change in humanitarian practice. There is a greater understanding of the existing gaps, failures and lessons learned from aid operations, leading to change in the way humanitarian organisations practice. Current literature has highlighted repeated failures in humanitarian programming and identified systemic weakness created by a lack of consistency in data and information management.

From the literature it is evident that humanitarian workers need to embrace social and operational context, make better informed decisions on response and programming with the key stake-holders, and refer to peer-reviewed standards of practice as a baseline for operational strategy (Darcy & Hofmann, 2003; Moe & Pathranarakul, 2006; Grais, Luquero, Grellety, Pham, Coghlan & Salignon, 2009; Garfield, Blake, Chatainger, Walton-Ellery, 2011; Haver, 2011). Whilst evident that appropriate use of technology in the collection, collation, understanding and dissemination of relevant and timely information can be enhanced, it is recognised that technology alone is not a panacea for addressing the gaps in humanitarian practice. It is the judicious use of appropriate technologies combined with a more collaborative decision-making process that ultimately will benefit those most in need.

To address these issues it must first be recognised that these problems create negative inertia in that they contribute to a self-perpetuating cycle of poor outcomes in humanitarian action. The bigger the crisis the larger the potential for negative outcomes. The fundamental way organisations function and health delegates operate must be addressed. Current humanitarian practice is not governed by a central body that establishes or regulates appropriate peer-reviewed standards of practice and their implementation. It is a fact that humanitarian practitioners are not required to undergo

¹ This is a registered trademark

continuous professional development nor do they answer to a peer-reviewed humanitarian board governing their practice activities. This study suggests that humanitarian organisations embrace a more professional approach to improving and maintaining the health delegate's professional body of knowledge as well as the ability of humanitarian organisations to better manage knowledge practices.

1.3 Aims and Objectives

The overall aim of this study is to improve the ability of health delegates to make decisions across the spectrum of humanitarian activities by providing access to a range of appropriate, peer-reviewed explicit knowledge-based resources. To achieve this it was necessary to examine knowledge management practices and attitudes from two contrasting operational perspectives: firstly, the perspective of those health professionals undertaking field based assignments, and secondly the staff of operational headquarters who support these activities. Furthermore, it was necessary to identify knowledge-based resources and appropriate delivery mechanisms to better support the ability of health delegates to enhance their decision-making processes across the wide spectrum of humanitarian activities.

To accomplish this it was necessary to explore the determinants that influence the ability of both humanitarian organisations and health delegates to utilise essential knowledge management frameworks. This study further explored health delegates' attitudes towards humanitarian work, ongoing professional development activities, decision-making processes, and their ability to access appropriate reference resources in the field. Finally it was important to understand the types of reference resources health delegates wanted to have access to as part of the development of a Portable Reference Tool.

The three research questions that this study addressed were:

1. What is the attitude and culture of international humanitarian organisation headquarter staff towards the professional management of health delegates?
2. Do health delegates have access to appropriate peer-reviewed explicit knowledge-based resources in the field environment?

3. What type of resources are needed by staff to perform to the best of their ability?

Five specific objectives were identified to respond to the questions:

- To identify and understand the types and sources of tacit and explicit knowledge tools health delegates use in their decision-making processes
- To explore the capacity and attitude of the headquarter groups and health delegates towards issues such as ongoing professional development and the maintenance of current practice competencies
- To examine what standard knowledge-based resources are provided by the various Red Cross movement headquarter staff
- To investigate what references and resources health delegates access and use in the humanitarian environment
- To identify the types and sources of explicit knowledge-based reference resources health delegates would like to access

1.4 Methods

To answer the major aims and objectives of this research it was necessary to identify and explore emerging themes through respondents' professional experiences, social determinants associated with work or life choices, and as well as organisational culture and attitudes towards knowledge management and ongoing professional responsibilities. It was equally important to explore themes from the different operational perspectives of headquarter staff and health delegate respondents. A cross sectional mixed methodology utilising key informant interviews and a structured questionnaire was used. This approach augmented a wider collection of data as well as strengthening the data itself. Using a singular research strategy would not have provided the necessary data and differences of respondents' operational perspectives essential for this present research (Creswell, 2009; Piantanida & Garman, 2009).

A review was undertaken to gather a broad selection of literature relevant to the evolution of humanitarian practice, knowledge management processes, decision-making frameworks, and advances in information technologies. This was further refined around humanitarian health related interventions and practices. A critical

analysis of the literature focused on issues by humanitarian organisations around failures in knowledge management practices, data collection and analysis, decision-making frameworks, and the application and use of digital technologies.

Data was collected from semi-structured interviews with key informants and respondents who completed structured surveys. This accumulated data, combined with the literature review, allowed for a critical analysis of trends, current practices, and emerging themes across humanitarian practices. Study participants were recruited through Australian (ARC), British (BRC), and Canadian (CRC) National Red Cross Societies as well as the International Committee of the Red Cross (ICRC) and the International Federation of the Red Cross and Red Crescent Societies (IFRC). A link to a structured questionnaire on Survey Monkey was distributed by Australian, British and Canadian national societies, and the ICRC. Key informant interviews utilising a semi-structured interview guide were held in Brisbane, Melbourne, Nambour (Australia), London (England), Toronto (Canada), and Geneva (Switzerland).

NVivo 10 software was used for data analysis. Thematic content analysis was used to identify emerging themes. Microsoft Excel was also used to analyse quantitative data sets and run basic descriptive analysis. Key themes were cross referenced against both sets of software to provide a reliable matrix of the key thematic content. Qualitative data was indexed into parent nodes from all respondents. As themes were identified nodes were created to capture the results.

1.5 Key Findings

This study has underlined the rapidly changing nature of humanitarian operations and has identified the need for humanitarian organisations and health workers to embrace an increased level of professionalism within the sector. Significantly, critical analysis of the data gleaned from interviews of key headquarter staff and experienced health delegates, as well as the returned questionnaires from general health delegates has identified deficiencies in knowledge management practices, appropriate uptake and use of available digital technologies and access to a structured continuous professional development program for headquarter staff and health delegates. In-depth discussions of the key findings are highlighted in Chapters 5, 6, 7 and 8 of this thesis.

1.5.1 Changing Pattern of Humanitarian Operations

A critical review of the literature provides a clear overview of a humanitarian sector struggling with the pace of change. Advances in communication technologies, the spread of internal violent conflicts resulting in large increases in internally displaced populations and increased population density amplifying the effects of natural disasters are some of the current challenges. As the number and responsibilities of humanitarian organisations widen, accountability benchmarks and voluntary minimum standards of practice around health, water and sanitation, shelter, and food security have been developed along with the voluntary humanitarian codes of conduct. Slow uptake of new technologies by humanitarian organisations has seen the entry of non-humanitarian players providing rapid assessment data faster and more accurately than humanitarian organisations can on the ground. Although the spread of the World Wide Web has seen an explosion in humanitarian websites and knowledge based resources, Internet access and reliability in countries affected by natural disasters or violent conflict is difficult or at times non-existent.

1.5.2 Knowledge Management Culture Among Headquarter Respondents

Key findings of this research identified that, at a headquarters level, there is currently a limited knowledge management structure in place to support health delegates prior to, during and post-mission. The results identify a clear weakness of the headquarter group respondents in understanding and implementing knowledge management practices. Whilst there is recognition that a broad range of appropriate and standardised reference material should be available in the field environment, there is acknowledgement that no standard set of appropriate reference materials is provided to each mission location. Significantly, the large majority of the five headquarter group respondents acknowledged that there is currently no provision that requires health delegates to maintain a current level of competency other than the normal registration requirements within their home country.

1.5.3 Health Delegates Knowledge Management Practices

One third of all health delegates acknowledged they were unable to stay current with issues and challenges of the humanitarian environment. Although the remaining two

thirds stated they did maintain a level of professional currency it was clear that the methods to achieve this are variable.

A significant finding here was that the vast majority (84%) of experienced and general health delegates acknowledged bringing their own reference resources, operational templates, project management documents and previous reports with them on mission. Additionally, only a small number (13%) of all health delegates acknowledged having complete access to all the appropriate reference resources needed to support decision-making processes. This is highlighted by the fact that over half of all health delegates identified their experience as the primary decision-making method utilized as opposed to 17% using an evidence based approach.

1.5.4 Portable Reference Tool

The findings of this study have identified significant knowledge management issues at a headquarters level and with health delegates' reference resource needs. Access to a range of appropriate peer-reviewed reference resources is recognised as necessary to be able to make appropriate informed decisions. Both the literature and data from the experienced and general health delegates have highlighted the limitations with respect to accessing information and knowledge based resources using the World Wide Web, whilst working in complex emergencies and natural disasters. Interestingly, health delegates also identified the need to have greater access to digital material for relaxation and stress reduction activities. Advances in portable computing and hard drive storage have presented an opportunity to address these issues. As part of this research an iPad Air and a Seagate Wireless Plus hard drive were purchased. A wide range of software, reference e-books, peer-reviewed standards of practice, templates, documents, research articles and a variety of relaxation material were loaded according to the requirements identified by health delegate respondents. The PRT was evaluated by two experienced health delegates for appropriateness of material and usefulness in decision-making processes.

1.6 Significance

Good knowledge management practices have been shown to add value to organisations because they facilitate better organisation of the corporate knowledge base, maintain

institutional memory, create innovation, disseminate information and, importantly, generate new knowledge through the participation of members in fields of practice networks (Liebowitz, Schieber, & Andreadis, 2010; Hong, 2011). To the present researcher's knowledge, this research is the first to investigate the use of knowledge management practices from the different operational perspectives of Red Cross headquarter groups and health delegates.

The results of this study highlight a significant weakness in knowledge management practices. The study and the critical analysis of the literature have provided an understanding of the limitations, failures and needs of knowledge management across the Red Cross headquarter staff and health delegates, and in the wider humanitarian sector. A major difference between the professional responsibilities and expectations required of health workers in a developed health care system and that of the humanitarian environment has been highlighted.

This thesis has proposed recommendations aimed at improving knowledge management practices by addressing identified limitations at both the organisational level and with health delegates. The development of the Portable Reference Tool provides a dual purpose for both headquarter staff and health delegates. Firstly, it provides headquarter staff the opportunity to provide health delegates ongoing information and updates to appropriate reference resources. This allows the headquarter staff to provide a range of agreed to standardised reference resources, clinical guidelines, and assessment methodology. Furthermore headquarter staff can keep health delegates informed about changes in clinical practice and noteworthy issues within the humanitarian community. Secondly, health delegates have access to a tool that provides them with a wide range of evidence based clinical guidelines, reference resources and operational templates. This importantly supports the ability of health delegates to make informed decisions, and maybe particularly important in circumstances where health delegates have spent considerable time away from humanitarian work, have had to step outside their normal clinical role, or have faced situations they have not seen or dealt with in their previous humanitarian work.

This research also proposes the application of the modified OODA Loop as a decision-making framework that allows data to be collected and constantly reevaluated by all

key stakeholders (affected population, local authorities, and aid organisations). This allows the data to become actionable knowledge, a key component in good decision-making processes. The access to appropriate evidence based guidelines and reference resources provides the framework in which humanitarian aid interventions can then be applied. Access to and use of the Portable Reference Tool provides health delegates with the appropriate evidence based guidelines and reference resources to support and strengthen their decision-making process. The evaluation of the Portable Reference Tool by two experienced health delegates acknowledged the usefulness of the tool. Additionally both evaluators acknowledged they would use the tool to access appropriate reference resources to support their decision-making processes.

1.7 Overview of Thesis

Chapter 1 has provided a brief introduction to issues and ongoing challenges faced by the humanitarian community. The rationale for the study along with the aims and objectives are discussed. This is followed by a statement of the significance of this study.

Chapter 2 explores the development of humanitarianism from the mid-nineteenth century to today's contemporary setting. The purpose of this chapter is to identify the development and changes in global politics, international humanitarian law, and advancements in information technologies that have and continue to influence the way in which humanitarian practice is implemented. Finally, this chapter looks at the Red Cross movement as the study participants were recruited through Red Cross partners.

Chapter 3 reviews literature concerning knowledge management and decision making. The literature review brings together knowledge management as a process that is used to leverage knowledge as a valued commodity in improving business efficiency and effectiveness. A modified decision-making model is proposed to address identified failures in humanitarian decision making.

Chapter 4 presents the study's research design and methodology. The use of a mixed methods research approach is detailed along with the research aims and objectives. An

outline of participant recruitment, data collection and data analysis is presented as well as ethical considerations of this research.

Chapter 5 provides the analysis of the descriptive data of the three sample groups of respondents. Descriptive data collected included professional demographics such as age, primary and postgraduate qualifications, and humanitarian work history. Further data collection and analysis focused on health delegates' attitudes towards humanitarian work as well as issues around the use of knowledge management processes.

Chapter 6 contains the qualitative analysis of the three surveyed respondent groups. The findings identify the emerging themes from key informant interviews with headquarter staff and experienced health delegates, as well as the findings from the structured questionnaires of the general health delegates.

Chapter 7 outlines the development of the Portable Reference Tool. The development of the tool was guided by the analysis of the quantitative and qualitative data and incorporated resources for health delegates' knowledge requirements. An overview of the contents of the Portable Reference Tool is given along with the evaluation of the tool. A brief overview of available knowledge-based tools is given as well as a list of useful humanitarian websites.

The study's findings are discussed in **Chapter 8** then discussed across the three surveyed groups and recommendations made. The Portable Reference Tool is discussed in terms of how it addresses the issues identified in this study. Areas of future research, the significance of the study, and its limitations are also discussed. The chapter ends with a concluding statement.

Chapter 2: The Humanitarian Aid Environment

2.0 Introduction

This chapter focuses on the International Red Cross movement and development and challenges of humanitarian relief in today's contemporary environment. Organised international humanitarian action has profoundly changed from its early mid-nineteenth century beginnings (Rieff, 2002). Moreover, since the 1990s the pace of change has accelerated. However, despite improvements within the humanitarian environment there remain clear issues that need to be addressed by humanitarian bodies. Current issues revolve around changes and appropriateness of intervention strategies, the use of peer-reviewed standards of practice as well as concerns surrounding the accountability of humanitarian organisations, beneficiaries, and donors (Walsh & Lenihan, 2006; Kilby, 2006; Cosgrove, 2007; Bradt, 2009). The developments and challenges within the humanitarian environment that have occurred through the implementation of international humanitarian law, global politics, research and emerging technologies are also identified in the chapter.

2.1 Background

The extent and easy accessibility of communications technology has projected the devastating effects of disasters into our living room. This ability to watch human suffering as it is unfolding has placed the actions of relief agencies more prominently into the public domain. Humanitarian funding has increased as have the number of aid agencies delivering relief. Information technology has created an inordinate pressure on humanitarian agencies and governments to respond quickly and appropriately. To better meet these challenges international humanitarian law (IHL) frameworks continue to be an important part of the humanitarian response maintaining their long associated history together. IHL continues to be developed and refined to meet global issues although its application is often the subject of intense international debate (deLisle, 2001; Collingwood, 2006; Welsh, 2010).

Access to vulnerable populations has improved, as has a more structured coordinated humanitarian approach to operational strategy and relief interventions. Despite

improvements, limitations still exist in training and educational resources for aid workers, issues of accountability, and funding mechanisms (Harvey, Stoddard, Harmer, Taylor, DiDomenico, & Brander, 2010). The expansion of humanitarian relief into previously separate fields of practice such as development activities has helped link the transition from emergency relief into rehabilitation and finally development (Yamashita, 2015).

The International Red Cross movement has been a driving force in humanitarian action as well as IHL since 1864. With the support of the national societies, the International Red Cross movement covers complex humanitarian emergencies, disaster response, development programs, and a wide range of post-conflict and disasters initiatives. The International Committee of the Red Cross continues to play an important role in humanitarian law, especially the Geneva Conventions.

2.2 The International Red Cross Movement

The International Red Cross movement is made up of three separate and distinct components:

- the National Red Cross and Red Crescent Societies (NS),
- the International Committee of the Red Cross (ICRC), and
- the International Federation of Red Cross and Red Crescent Societies (IFRC).

The ICRC and IFRC function independently of one another. Both the ICRC and the IFRC have specific mandates outlining their roles and responsibilities in disaster and complex emergency settings (Council of Delegates, 1997). Aid workers work within specific mandates set out under the respective Red Cross institutional umbrella. The ICRC has a legal mandate from the international community. That mandate has two sources, firstly the 1949 Geneva Conventions and their Additional Protocols added in 1977 and 2005, and secondly the Statutes of the International Red Cross and Red Crescent. The Geneva Conventions and their Additional Protocols are at the heart of IHL which seeks to legalise the conduct of parties engaged in armed conflict. The Conventions and Protocols as identified in Table 1 set out guidelines for the treatment and protection of wounded soldiers on land and on sea, prisoners of war and non-combatants (The Geneva Conventions of 1949 and their Additional Protocols, 2010).

Table 1: 1949 Conventions and Additional Protocols

Convention	Description	Date and Year
Convention (I)	Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field.	Geneva, 12 August 1949
Convention (II)	Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea.	Geneva, 12 August 1949
Convention (III)	Treatment of Prisoners of War.	Geneva, 12 August 1949
Convention (IV)	Protection of Civilian Persons in Time of War.	Geneva, 12 August 1949
Protocol Additional to the Geneva Conventions of 12 August 1949	Protection of Victims of International Armed Conflicts (Protocol I)	8 June 1977
Protocol Additional to the Geneva Conventions of 12 August 1949	Protection of Victims of Non-International Armed Conflicts (Protocol II)	8 June 1977
Protocol additional to the Geneva Conventions of 12 August 1949	Adoption of an Additional Distinctive Emblem (Protocol III)	8 December 2005

Sources: ICRC, International Humanitarian Law – Treaties & Documents

The Geneva Conventions, as of the year 2000, have been ratified by 194 States making them universally accepted by the global community (The Geneva Conventions of 1949 and their Additional Protocols, ICRC, 2010). The Geneva Conventions as part of IHL provide ICRC with the mandate to work as a neutral entity within countries engaged in armed conflict and to provide humanitarian relief to all warring parties and affected populations when and where necessary. Furthermore the ICRC assumes responsibility to visit prisons and talk to prisoners to ensure acceptable treatment of prisoners under IHL (Mission Statement, ICRC, n.d.). No other humanitarian organisation has been entrusted with this mandate. The ICRC in 2013 conducted field operations in 80 countries across Africa, Asia and the Pacific, Europe and the Americas, and the Middle East (ICRC Annual Report 2013).

The core function of the IFRC is different from that of the ICRC. The IFRC core focus is disaster response, preparing communities to better respond to sudden onset disasters and programs that help lessen the impacts of future disasters, development in local infrastructure, as well as health and community based initiatives and the promotion of key humanitarian values. The IFRC is made up of 189 National Red Cross and Red Crescent societies and is recognised as the largest humanitarian organisation in the world (Vision and Mission, IFRC, n.d.).

Whilst both the IFRC and the ICRC have different mandates, both organisations can and do work together in countries beset by both conflict and natural disasters. Protracted conflicts in Afghanistan and Sudan, the conflict and tsunami in Sri Lanka and the earthquake in Aceh in Indonesia are prime examples of countries impacted by both conflict and disasters. To better utilise core organisational strengths and maximise operational expertise a framework under which roles, responsibilities and coordination of the various Red Cross movement partners was developed, called the Seville Agreement. Under this Agreement the ICRC or IFRC can be assigned lead roles in certain relief activities or the lead agency in control of all Red Cross humanitarian activities. This framework allows for continuity and clear coordination of all Red Cross activities and national societies (Council of Delegates, 1997).

National societies form the backbone of the International Red Cross and Red Crescent movement with approximately 97 million volunteers and 300,000 paid employees worldwide (National Society Key Facts, IFRC, n.d.). Each of the 186 national societies is made up of volunteers and staff providing services in emergency response, disaster relief, first-aid training, health, water and sanitation projects, community development and, where applicable, assistance to the victims of war and assisting in the reunification of separated families. National society staff and volunteers are often the first to respond to a disaster and the last to leave. The core strength of the Red Cross movement is its global presence, with an ability to respond quickly, led by local Red Cross branches with cultural and local knowledge (What We Do, IFRC, n.d.).

International aid workers or *delegates* as they are referred to within the Red Cross movement are paid employees who must hold appropriate professional qualifications relevant to their job description. The professional health occupations asked of Red

Cross health aid workers from the ICRC, IFRC or a national society can be wide and varied to meet the requirements for particular programs or situations. These include but are not limited to generic occupations such as doctors, nurses, physiotherapists, nutritionists and public health specialists. Other health specialists can include epidemiologists, pathologists and scientists.

Furthermore these occupations can be further broken down into specialist roles such as surgeons, anaesthetists, obstetricians, paediatricians and medical positions, general nurses, midwives, child health nurses, operating theatre nurses, surgical nurses or public health workers to name a few. Aside from a clinical role, health aid workers administer and manage programs, coordinate health responses and work with local and national authorities. They can be employed on a permanent basis with a national society, the ICRC or the IFRC or, alternately, be contracted through their national society to work directly with the ICRC or IFRC. Once a contract is completed it is at the discretion of the health delegate when and if another mission is undertaken. The time between missions may be months or years. The humanitarian sector, as a field of practice, is evolving to meet the complex challenges presented to the global community. The next section introduces the concept of humanitarianism.

2.3 Humanitarianism

Organised international humanitarian action originated with the formation in 1863 of the International Committee of the Red Cross (Boissier, 1985, p.49). Contemporary humanitarianism is predicated on Jean Pictet's discourse of the seven fundamental principles of the International Committee of the Red Cross (Pictet, 1979; Weiss, 1999). It is the first four, however, that constitute the core principles for the wider humanitarian movement: humanity, impartiality, neutrality and independence (General Assembly Resolution 46/182, 1991; Barnett & Weiss, 2008).

Simply defined, humanitarianism is "concerned with or seeking to improve human welfare" (Compact Oxford English Dictionary, 2008, p.492). The Sphere Project (The Sphere Project, 2000, p.6) expands this definition further by describing its humanitarian imperative and primacy as: "The belief that all possible steps should be

taken to prevent or alleviate human suffering arising out of conflict or calamity, and that civilians so affected have a right to protection and assistance”.

The provision of humanitarian aid has traditionally been immediate short-term emergency relief to populations affected by man-made or natural disasters (Fink & Redaelli, 2010). The Centre for Research on the Epidemiology of Disasters defines a disaster as “a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering” (Guha-Sapir, Vos, Below & Ponserre, 2008, p.3). Whilst rapid-onset natural disasters such as tsunamis or earthquakes dominate higher profile responses, slow-onset disasters such as drought, famine, and desertification can be just as devastating and have a prolonged impact on human beings, communities and the environment (Spiegel, 2005).

The term *complex humanitarian emergencies* was first coined to describe the effects that armed conflict and political instability had upon the social fabric and population of a country (Brennan & Nandy, 2001). Sharing similar traits and predictable health consequences with natural disasters, complex emergencies—as defined by Wisner & Adams (2002)—are “situations of disrupted livelihoods and threats to life produced by warfare, civil disturbance and large-scale movements of people, in which any emergency response has to be conducted in a difficult political and security environment” (p. 12).

2.4 Operating Environment

Natural disasters and complex humanitarian emergencies often share similar characteristics and can occur simultaneously (Fink & Redaelli, 2010). Unstable political environments and violent climates are unique challenges (Schull & Shanks 2001; VanRooyen, Hansch, Curtis & Burnhan 2001). Collapse of social services, destruction of public health infrastructure, food shortages, population displacement, and elevated morbidity and mortality rates all contribute to an already deteriorating humanitarian environment (Burkle, 2000; Lautze, Leaning, Raven-Roberts, Kent & Mazurana 2004; Salama, Spiegel, Talley & Waldam 2004).

The humanitarian worker's operational environment is one frequently surrounded by abject poverty, famine and disease, coalescing with high rates of morbidity and mortality, too often exacerbated by the effects of natural disasters or recurring violent conflicts and, at times, a combination of the two simultaneously. Acts of targeted violence, kidnappings and banditry against aid workers has further complicated working within complex humanitarian settings (Good Practice Review, 2010, p.1). Whilst this is not new phenomenon, violence and killing of humanitarian aid workers has become an occupational reality (Sheik, Gutierrez, Bolton, Spiegel, Thieren & Burnham, 2000; O'Dowd, 2010; Carlisle, 2012; Roth, 2015).

During the years 2009-2010, approximately 540 aid workers were either killed, kidnapped or wounded (Taylor, Stoddard, Harmer, Haver & Harvey, 2012). The Aid Worker Security Report 2014 claimed this number had increased to 737 aid workers either killed, kidnapped or injured. In 2013 a new record of 155 deaths was set. Intentional violence and targeting of humanitarian workers has seen deaths resulting from gunshots, shelling, suicide bombers, and beheadings. From January 2014 until the end of March 2015, 13 international aid workers and 101 national aid workers were killed (The Aid Worker Security Database, 2015). Afghanistan, Sudan, Congo and Somalia were some of the most dangerous contexts for humanitarian aid workers in the last decade with recent conflicts in Syria and the Ukraine now contributing (Aid Worker Security Report, 2014). Table 2 provides a summary of attacks on aid workers from 2005-2013. To meet these challenges, humanitarian interventions must continue to evolve with the complexities of global politics, economics, conflict, and technologies (Munslow & O'Dempsey, 2010; Steinberg, 2011).

Table 2: Attacks on Aid Workers, 2005-2013

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of incidents	74	107	123	165	155	130	152	170	251
Total aid worker victims	170	240	220	278	296	254	309	277	460
Total killed	53	87	88	128	109	72	86	70	155
Total injured	96	87	87	90	94	86	127	115	171
Total kidnapped*	23	66	45	60	93	96	96	92	134
International victims	15	26	34	51	75	46	29	49	59
National victims	157	214	186	227	221	208	280	228	401
UN staff	27	61	39	65	102	44	91	60	110
International NGO staff	112	110	132	157	129	148	141	87	130
LNGO and RCS staff**	28	55	35	46	55	47	77	105	191
ICRC staff	3	10	4	5	9	10	5	3	14

Source: Aid Worker Security Report 2014

* Victims killed in the course of a kidnapping are counted in the 'killed' totals

** Local nongovernmental organisations (LNGO) and National Red Cross/Red Crescent Societies (RCS)

The end of the Cold War has seen the proliferation of Complex Humanitarian Emergencies. The terrorist attack and destruction of the World Trade Centre in Washington DC September 2001, as well as the 2004 Indian Ocean tsunami, not only changed mechanisms and approaches in which Non-Government Organisations (NGOs), International Non-Government Organisations (INGOs), Governments and United Nations bodies responded but also influenced the development of a broader suite of practices and objectives (Heyse, 2006, p.3, Yamashita, 2015).

Humanitarian organisations expanded into areas once reserved for states such as conflict prevention, peace building initiatives and economic development (Uvin, 2002; Barnett & Weiss, 2008). INGOs such as Oxfam and Save the Children were founded to deliver emergency aid during World War II but have since moved into a wide range of development activities (Rieff, 2002, p.81; Barnett, 2010, p.181). Oxfam now undertake such activities as:

- supporting child education programs
- partnering with other organisations in HIV and Aids prevention as well as expanded health care programs

- climate change initiatives
- peace and security programs through local capacity building and dialogue
- improving indigenous and minority rights by supporting organisations that are advocates for political and policy change (Oxfam International, 2015).

Similarly, Save the Children, an international humanitarian organisation that focused on children, has programs to support education, HIV and AIDS, as well as:

- maternal and child health
- child protection
- climate change adaption and disaster risk reduction programs
- emergency response programs (Save the Children, 2015).

Traditionally, developmental aid has been dissimilar from humanitarian aid in its implementation and operational context (Fearon, 2008; Fink & Redaelli, 2010). However, the protracted and complex humanitarian crisis of the 1990s helped streamline relief, rehabilitation and development into a more pragmatic and effective delivery of humanitarian aid (GHA Report 2009, p.75-76, Australia's aid program, n.d). Long-term development is seen as a means to reduce violence, stabilise and secure peace (Collison, Elhawary & Muggah, 2010).

The General Assembly Resolution 46/182 (1991) adopted principles in which “*Emergency assistance must be provided in ways that will be supportive of recovery and long-term development*” (p.1). Dubbed ‘New Humanitarianism’, structured political approaches have endeavoured to link aid delivery with broader conflict-resolution strategies (Gibbons, 2010; Collinson, Elhawary & Muggah, 2010).

Since 2000 development assistance has become a key pillar of humanitarian aid. Key development institutions such as the World Bank Group with its 188 member countries have been working to reduce poverty, disease and hunger, as well as invest in infrastructure and social assistance programs. The World Bank annual report 2012 highlights that:

- 496,800,000 children immunised
- 266,000,000 people covered by social safety net programs

- 145,420,000 people gained access to improved water sources
- 9,910,000 people benefited from improved sanitation
- 4,140,000 teachers either recruited or trained (The World Bank Annual Report 2012).

The World Bank annual report 2014 highlights that:

- 95,000 kilometres of roads constructed or rehabilitated
- 37.4 million people covered by social safety net programs
- 1.8 million farmers helped to adopt improved agricultural technology
- 6.8 million people had access to better sanitation facilities
- 29 countries were supported in improving disaster risk reduction as a national priority (The World Bank Annual Report 2014).

The report benchmarks improvements against the Millennium Development Goals (MDGs). As part of the approach, the MDGs became a fundamental strategy endorsed by 189 governments to address eight core anti-poverty targets at a global level. Ban Ki Moon, the Secretary-General of the United Nations hailed the MDGs program from 2000-2015 as the “most successful anti-poverty movement in history” (The Millennium Development Goals Report 2015, p.3). Building on the success of the MDGs, a new global sustainable development agenda has seen the adoption of 17 Sustainable Development Goals (SDGs) over the next 15 years. According to the United Nations Development Program the SDGs are more inclusive and have a broader focus on development needs and primary causes of poverty (Sustainable Development Goals, 2015).

According to the Global Peace Index 2014 report (p.1), trends in global peace and security have been decreasing since 2008. The incidence of global terrorism related deaths in 2013 was 17,958, a rise of 61% from 2012 (Global Terrorism Index Report, 2014). Since 2000 there have been over 35 major conflicts and 2,500 disasters (Disasters and Conflict, n.d.). In 2012 the rapid escalation in internal violence within Syria affected up to three million people whilst the United Nations High Commissioner for Refugees (UNHCR) estimated approximately 710,000 people would move across borders by the end of 2012 (Emergency Relief Coordinator’s Key Messages on Syria,

2012). By August 2014, the number of Syrian people internally displaced numbered 6.45 million whilst a further 2.9 million people sought refuge outside the country (The Syria crisis, displacement and protection, 2014). According to OCHA as of March 2015, 3.9 million people had fled the country, 7.6 million people had become internally displaced, with up to 12.2 million people in urgent need of humanitarian aid (Syria, OCHA, 2015).

Furthermore, the protracted conflict in Iraq continued to escalate since the emergence of the Islamic State of Iraq and Levant (ISIL). The escalating violence between government forces and armed groups caused mass population movements resulting in upwards of 2.6 million people internally displaced (Iraq CRISIS, Situation Report No.37, 2015). Armed conflict in Ukraine since mid-2014 also resulted in mass population movements with 1.17 million people displaced according to the Ministry of Social Policy (Ukraine Situation Report No. 33, 2015). Additionally, chronic and protracted conflict-related actions continued in Afghanistan, Sudan, South Sudan, and the DRC (Taylor et al., 2012).

During 2010, there were 385 natural disasters resulting in more than 297,000 deaths and affecting 217 million civilians. The earthquake in Haiti on 12 January 2010 accounted for an estimated 230,000 deaths and left over one million people homeless (Hidalgo & Theodate, 2011). The economic impact was estimated at US\$123 billion (Guha-Sapir, Vos, Below & Ponserre, 2010). In 2011 there were 53 less natural disasters and only 30,773 deaths, but 2011 saw affected populations increase to 244.7 million and the highest economic damage recorded at US\$366.1 billion (Guha-Sapir, Vos, Below & Ponserre, 2011).

The majority of the increase in economic damage is attributed to the Japanese earthquake and tsunami in 2011 and the two earthquakes in Christchurch, New Zealand with costs estimated at US\$210 billion and US\$18 billion respectively (World Disasters Report, 2012). It was estimated that in the period 1994-2013 the global economic cost of natural disasters was over US\$2.5 trillion (The Human Cost of Natural Disasters, 2015). On 25 April 2015 an earthquake in Nepal measuring a 7.6 magnitude caused over 8,600 deaths, over 22,000 injuries, and directly affected eight million people. The Nepalese government estimated the economic impact of this

disaster at US\$7 billion (Nepal Earthquake, 2015). Most disasters occurred in Asia (44%) followed by the Americas (28%), Africa (19.3%), Europe (5.4%), and Oceania at 3.3% (Guha-Sapir, Vos, Below & Ponserre, 2011).

By the end of 2009, UNHCR estimated there were 43.3 million people displaced from their homes by force (UNHCR Global Trends, 2009). By the end of 2010 UNHCR estimated there were 43.7 million people “forcibly displaced due to conflict and persecution, the highest in more than 15 years” (UNHCR Global Trends, 2010). It increased in 2013 to 51.2 million people and again increased by the end of 2014 to record levels of 59.5 million people (UNHCR Global Trends, 2013; UNHCR Global Trends, 2014). The UNHCR Global Trends Forced Displacement in 2014 report identified that of these 59.5 million people, 19.5 million were refugees, 38.2 million were internally displaced populations, and 1.8 million were asylum seekers. It also identified that in 2014 conflict-related events created 11 million new internally displaced people. Conflict related funding to affected countries from between 1999-2008 was approximately US\$52 billion, whilst the United Nations in 2010 deployed 100,000 peacekeeping personnel to 55 countries at a cost of US\$7.4 billion (GHA Report, 2010).

Official Development Assistance (ODA) in 2011 through the Organisation for Economic Co-operation and Development was US\$133.5 billion (The Organisation for Economic Co-operation and Development, n.d.). The impact of both the global financial crisis and European debt adversely impacted both developed and developing countries. Aid spending across the OECD donors fell in both 2011 and 2012, although there were expectations that it would improve due to increased assistance from Germany, Italy, and New Zealand in 2014 (The 2014 Global Outlook on Aid). Whilst global growth increased slowly in 2013 at 2.5% and in 2014 at 2.6%, significant challenges remain around the fragility and volatility of global financial markets (Global Economic Prospects, 2015).

2.5 Development of International Humanitarian Law

Although humanitarian practice has had a long history with international humanitarian law (IHL), the initial development of legal frameworks dealing with rudimentary

issues of IHL, were first and foremost established in response to violent international conflict (Sassoli, 2007). The birth of the Geneva Conventions in 1864 was followed by the establishment of a set of regulatory principles for behaviour and conduct in times of war (The Geneva Conventions of 1949 and their Additional Protocols, ICRC, 2010). At the end of the nineteenth and the beginning of the twentieth century, IHL started to gain momentum with the first peace conferences in The Hague. Previous Geneva Conventions were expanded and new agreements on the protections of combatants were added (Boissier, 1985, p.369). The international community had now begun to expand albeit within a limited framework under IHL guidelines for the protection and treatment of either sick or wounded combatants, medical staff, and related facilities as well as the treatment of prisoners of war. Limitations remained, however, most notably with the absence of articles governing the protection of civilians with the limited exception of Article 3 of the Geneva Conventions (Bruderlein & Leaning, 1999). Whilst international legal frameworks were being established, mechanisms for a more participatory political organisational approach had not yet been created.

Large scale civilian casualties and lack of compliance towards IHL during both World War I and II became the catalyst for broader action by the international community. Following World War I this new political agenda led to the establishment of the League of Nations in 1919. The main objective was to provide a regulatory framework for member states to resolve issues through dialogue not conflict (The United Nations in the Heart of Europe, n.d.). Although the overall objective of the League of Nations failed with the outbreak of World War II, the groundwork for a participatory and politically engaged international organisation had been laid. The formation of the United Nations in 1945 and the dissolution of the League of Nations in 1946 ushered in a new area of global political cooperation and engagement (The Formation of the United Nations, n.d.).

Building upon this political engagement, the Declaration of Human Rights, passed by the United Nations General Assembly in 1948, set forth for the first time a common universal standard for humanity (Universal Declaration of Human Rights, n.d). Further declarations, treaties, protocols and conventions have been established augmenting both a renewed political landscape—whilst providing clear roles and responsibilities

for individual States and the broader international community. The demise of the Cold War throughout the years 1988-1990 brought about dramatic change in the political landscape as internal conflicts escalated and the collapse of communism led to the breakdown of the USSR, Former Yugoslav Republic, Czechoslovakia and East Germany (Lafeber, 2002, p.371; Bisley, 2004). Furthermore changing patterns of conflict led to a reduction in international conflicts and a subsequent escalation in rapidly changing forms of internal conflict (Pirrotte, Husson & Grunewald, 1999, pp.1-2). These emerging patterns of internal conflict forced the international community to respond by adding additional protocols to the Geneva Conventions in June 1977 (Bory, 1982; Leaning, Briggs & Chen, 1999). They were:

- Protection of Victims of International Armed Conflicts (Protocol I)
- Protection of Victims of Non-International Armed Conflicts (Protocol II) (ICRC, International Humanitarian Law–Treaties & Documents, n.d.).

The introduction of the additional protocols recognised the need to protect vulnerable populations from armed violence and conflict within borders of states. When coupled with the creation of The United Nations Office of the High Commissioner for Refugees (UNHCR) in 1950, the declarations reaffirmed that, under international law, the protection of human rights and dignity are clearly paramount within the framework of international policy and as such would be monitored under international law (Office of the United Nations High Commissioner for Refugees, n.d.). Today 194 States have signed the Geneva Conventions and the additional protocols making this set of IHL instruments an accepted global agreement that nations would need to adhere to in times of conflict (The Geneva Conventions of 1949 and their Additional Protocols, 2010).

With declarations and legal frameworks dedicated to issues of human rights clearly established under the umbrella of international law and IHL, access to vulnerable populations and implementation of humanitarian interventions has gradually improved. IHL and its universal implementation, however, often share a fragile and fragmented relationship with political consensus. Individual national interests remain a key determinant of humanitarian access and action (Burkle, 2000). The 1990s saw the rise of United Nations mandated multinational military involvement for peace-keeping purposes with up to 80,000 personnel on operational deployments during the mid-1990s (Pugh, 1998). In 2015 the United Nations (UN) had 16 ongoing

peacekeeping operations comprised of 106,245 uniformed personnel, 16,791 civilian personnel and 1,710 UN volunteers (Peacekeeping Fact Sheet, 31 August 2015).

Although UN peace keeping troops were in Rwanda in 1994, the numbers of peacekeepers were extremely small, unable to offer much resistance to the Hutu militia (Interahamwe), which was responsible for the genocide of some 800,000 ethnic Tutsi during a three month period. This not only reaffirmed the fragility of international law but also highlighted what Barnett (2002) argued as the widespread geographical political indifference at play. Furthermore the Rwanda genocide clearly identified the weakness of IHL in that “there is no judge and no police”. Its respect depends on self-application by the addressees—states, armed groups and individuals involved in armed conflicts” (Sassoli, 2007, p.49).

There is continued debate and strong legal arguments about the use of military force as a framework for humanitarian intervention. In the previous century, Adolf Hitler claimed that more than three million Germans were at risk of death through mistreatment. Hitler used the pretext of humanitarianism to justify his invasion of Czechoslovakia (Leaning, Briggs & Chen, 1999). In this century Russia’s President Vladimir Putin used “humanitarianism” as a pretext for direct involvement in Ukraine’s violent civil conflict (Kurowska, 2014; Scrinic, 2014). Failure by the international community to stop genocides in Rwanda (1994), Darfur in Sudan (2003-04), and Bosnia (1992-95) clearly frame the political complexities of military intervention (Burgess, 2011). However, as Welsh (2004, p.54) points out, when military intervention was used in the 1999 bombing of Kosovo by NATO, it has “become famous for the volume of legal debate that it generated”.

To blur the lines further between military intervention, issues of sovereignty and humanitarianism, the fake CIA vaccination campaign in Pakistan employed to collect and analyse DNA in the hunt for the terrorist Osama bin Laden created considerable problems. In response, eight polio vaccinators were killed, leading the UN to suspend their polio-eradication program, and the Pakistan government expelled the foreign workers of Save the Children humanitarian organisation (Roberts & VanRooyen, 2013).

To use or not to use outside military force as a framework for humanitarian intervention has become a serious debate on the legal issue of sovereignty as much as the questions of when?, why and by whom? Evaluation of the Rwandan atrocities and NATO's intervention in Kosovo clearly framed two long-term fundamental humanitarian issues: first, the lack of a universal political leadership to intervene in large scale acts of genocide regardless of international law conventions; second, issues relating to use of external military force as a humanitarian intervention (Barnett, 2002, p.2-3; Western, 2002). As the former Secretary General of the United Nations Kofi Annan stated:

“humanitarian intervention is a sensitive issue, fraught with political difficulty and not susceptible to easy answers. But surely no legal principle not even sovereignty can ever shield crimes against humanity” (We the Peoples, 2000, p.48).

To provide clarity and direction on collective international foreign policy the Canadian Government created an independent body, the International Commission on Intervention and State Sovereignty (ICISS), in September 2000. Their mandate was to establish a platform for political consensus and future directions on these difficult issues for the United Nations. The subsequent report called ‘The Responsibility to Protect’, provided the groundwork for the United Nations to ask the international community to adopt the recommendations of the report as an action plan for acts of genocide, war crimes, ethnic cleansing and crimes against humanity (The Responsibility to Protect, 2001). However, as UN Secretary-General Ban Ki-moon pointed out “R to P is not a new code for humanitarian intervention. Rather, it is built on a more positive and affirmative concept of sovereignty as responsibility” (Secretary-General, 2008, p.1).

The 2005 World Summit Outcome document defined clearly several points of the responsibility to protect in paragraphs 138 and 139. One point was that the responsibility of sovereign states is to “protect its populations from genocide, war crimes, ethnic cleansing and crimes against humanity”. A second point was that the international community through the United Nations “are prepared to take collective action, in a timely and decisive manner, through the Security Council”, on a case by

case basis (Resolution adopted by the General Assembly, 2005). Paragraphs 138 and 139 were also reaffirmed and adopted by the Security Council in 2006 (Resolution 1674, 2006).

Not surprisingly its implementation remains a source of constant supposition with diminutive tangible action. Bellamy (2014) argues that no better example reflects the idealism of the Responsibility to Protect framework framed by the inaction of the global community to take action than the current violent conflict in Syria. Substantial and persistent legal argument continues to revolve around legitimacy issues of sovereignty and military actions in support of humanitarian interventions (deLisle, 2001; Sassoli, 2007).

Russia's annexation of the Crimea and its subsequent reintegration as part of Russian territory, along with its ongoing involvement in Ukraine's civil conflict, highlight these points very well (Tsygankov, 2015). Historically, the failure by the international community to respond to ethnic cleansing in Bosnia and Rwanda, the failure of the UN peace keeping mission in the Democratic Republic of the Congo, legal controversy surrounding NATO's intervention in Kosovo, the success of United Nations interventions in East Timor, Chad, and Sierra Leone, NATO's 2011 intervention in Libya, and the ongoing mission in Afghanistan, highlight the disparities and difficulties of military intervention on humanitarian grounds (NATO and Libya, n.d.; Rieff, 2002; Alvarez, 2011; Western & Goldstein, 2011).

The United Nation's attempt to legitimise the use of force as an intervention strategy as outlined in paragraphs 138-139 of the 2005 UN World Summit Outcome Document (Resolution adopted by the General Assembly, 2005) has been mired in its misapplication, its misinterpretation and political disagreements from within the security council (Welsh, 2010; Eckhard, 2011). However, it highlights the difficulty and complexity of providing timely and appropriate humanitarian action. From a practical point the rhetoric of the General Assembly, Security Council affirmations and the pillars of IHL provide little protection for populations suffering violence.

As a result of the terrorist attack on New York's Twin Towers (11 September 2001), international and national counter-terrorism laws have had an impact on humanitarian

interventions. Case studies of Somalia and Gaza found that the ability of aid organisations to function and fund programs has been significantly impacted due to fears donors and aid organisations could be seen to be providing material support to designated terrorist organisations such as Hamas and Al-Shabaab (Pantuliano, Mackintosh, Elhawary & Metcalfe, 2011). The United States in 2009, suspended food aid to Somalia due to fears that food was being used by the Al-Shabaab terrorist group (Menkhaus, 2010). This politicisation of aid is not new, however. Mistrust of the ICRC's principled and neutral relief programming to prisoners of war during World War II was at times seen as supplying support to the enemy by the British government (Crossland, 2010). Although true to their mandate, it was the ICRC's lack of public voice in condemning atrocities that led to the creation of Medecins Sans Frontieres (MSF). MSF was one of the first humanitarian organisations to use politics as a mechanism to raise awareness of humanitarian emergencies and openly highlight responsible antagonists (Rieff, 1999). MSF campaigns for the adequate "access to medicines" for the world's poor (Barnett & Weiss, 2008).

Core humanitarian principles such as impartiality, independence and neutrality in the provision of humanitarian aid have become harder to maintain (Collinson, Elhawary & Muggah, 2010). As Donini (2010) points out, humanitarianism and political manipulation have a long history together. Both the United States and NATO have used the implementation of humanitarian aid as part of ongoing operational strategies in Kosovo, Iraq and Afghanistan (Lischer, 2007).

The expansion of NGOs into areas once the express role of States as outlined under section 2.2 has seen their political influence increase in what Steinberg (2011) refers to as "soft power" (p.24), created through a combination of perceived expertise, apolitical agendas and public profile. Political interference such as the Sudanese government's refusal to allow the United Nations and NGOs unrestricted access into the conflict regions of Darfur during 2003-2004 allowed the Janjaweed militias to perpetrate mass atrocities under the direction of the Sudan Government (Udombana, 2005).

2.6 Technology

The spread, uptake and accessibility of technology related to the Internet, mobile communications and social media have dramatically altered the way people react and respond to unfolding humanitarian crises (Smith, MacAuslan, Butters & Tromme, 2011). Large conflicts or natural disasters can generate an overwhelming and rapid response by humanitarian organisations in response to expansive and prolonged media coverage generating considerable donor contributions. Dubbed the ‘CNN effect’, pictures of human suffering have helped to polarise public awareness and calls for action (Welsh, 2004, p.2). Global awareness of humanitarian crises has facilitated increased public support and funding as well as improved cross-border international engagement (VanRooyen, Hansch, Curtis & Burnham 2001; Letukas & Barnshaw, 2008).

As Cosgrove (2007) pointed out, however, the 18.1 billion USD provided in donations and pledges for those affected by the Indian Ocean Tsunami of 2004 was not based on their immediate needs but rather a combination of constant media coverage of the disaster and political considerations of donor countries. This “all or nothing approach” further erodes the resources needed to react to other less publicised humanitarian crisis (Spiegel & Qassim, 2003; Vaux, 2006). The 2006 World Disasters Report (World Disasters Report, 2006) published by the International Federation of Red Cross and Red Crescent Societies highlighted the disparity in funding less publicised crises received. According to this report, the 2004 Asian Tsunami garnered “at least US\$1,241 per beneficiary in humanitarian aid alone” whilst “emergency appeals in 2005 for Chad, Guyana, Cote d’Ivoire, Malawi and Niger garnered an average of less than US\$27 per person” (p.18-19).

Unfortunately, those crises that are less prominent and receive scant media attention force many humanitarian organisations to determine those populations they are able to provide a level of assistance to and those they cannot (Heyse, 2006, pp.1-2). Countries such as Somalia, Myanmar, Chad, Angola, Yemen and the Democratic Republic of the Congo, all received significantly less funding than the more publicised crises such as Afghanistan, Iraq, Ethiopia, West Bank and Gaza, and Sudan (OECD, 2010).

This new humanitarian environment has been described as both harsh and dysfunctional where inconsistencies in resource allocation are linked not to needs of populations but rather to political interests (Kent, 2004; Barnett, 2010). Fink and Redaelli (2010) in their study of 270 disasters between 1992 and 2004, found that “political factors are at least as important in emergency aid as the actual humanitarian need associated with natural disasters” (p.754). The consequences of these decisions underline the complexity of the humanitarian system whilst highlighting the ethical dilemmas many aid organisations confront.

The operational landscape for international organisations as well as the proliferation of the non-governmental organisation sector (NGO) has expanded significantly (Heyse, 2006, p.3). The United Nations Economic and Social Council (ECOSOC) currently accredits 4,045 NGOs with consultative status allowing access to ECOSOC programs, panels and discussions as organised by the President of the General Assembly (Basic Facts about ECOSOC Status, n.d). In 2006, India alone had 100,000 NGOs working in the development sector (Kilby, 2006). It was estimated in 2009 that there were close to 200,000 NGOs receiving international aid funding whilst the United Nations estimated there were around 35,000 large international NGOs (Lewis & Kanji, 2009, p.2). This number had now increased to nearly forty thousand (Ben-Ari, 2013; American Psychological Association, 2015). The large INGOs include: ACTION AID, CARE, CARITAS (Catholic Relief Organisation), CRS (Catholic Relief Services), GOAL (International humanitarian agency), IRC (International Rescue Committee), LEGACY International, MSF (Medecin San Frontieres), OXFAM, Save the Children, WFP (World Food Program) and World Vision International (Christian relief, development and advocacy organisation).

With the growth of the NGO base has come a broader area of operational strategies and interventions such as research, policy analysis, and post-conflict peace building projects, as well as environmental and cultural protection in conflict, emergency and post-conflict situations (Lewis & Kanji, 2009, pp.1-5, 2009; Barnett & Weiss, 2008, p.3). The broader role humanitarian organisations now engage in, however, fails to negate the fact that current humanitarian needs of vulnerable populations often exceed the available physical and financial resources (VanRooyen et al., 2001; Heyse, 2012). The 2005 Humanitarian Response Review noted that the increased competition

between organisations and a lack of operational coordination contributed to poor intervention outcomes and that humanitarian responses needed to improve (Adinolfi, Bassiouni, Lauritzsen & Williams, 2005).

The operational boundaries of “humanitarianism” have increased to encompass a somewhat wider set of activities and actors previously distinct from the traditional humanitarian practitioner (Barnett & Weiss, 2008; Barnett, 2010). Traditionally the demarcation of humanitarian action and development activities provided for a clear separation of fundamental roles, responsibilities and goals for implementing INGOs and NGOs. However, this globalisation of ‘humanitarianism’ has created confusion in how humanitarianism is being defined and implemented by aid and development organisations (Barnett & Weiss, 2008; Lewis & Kanji, 2009). The lack of clearly defined conceptual boundaries and the use of the term ‘humanitarian’ as a justification for a variety of different intervention models emphasise an ever-increasing complexity in assigning a clear and concise meaning to the term (Chimni, 2000; Watson, 2011). As Angelo Gnaedinger (ICRC Director-General, 27 February 2004) stated, “the term humanitarian is presently so overused that it has itself become a source of considerable confusion”.

2.7 Humanitarian Accountability

In response to such criticisms there has been a push by international and non-governmental relief organisations to develop standardised sets of minimum benchmarks to both improve the delivery of humanitarian aid as well as measure the effectiveness of such aid (Brennan & Nandy 2001; Bradt & Drummond 2003). The Paris Declaration on Aid Effectiveness agreed in 2005 by more than 135 countries and reaffirmed by the Accra Agenda for Action in 2008 was an initiative to better coordinate national and international development programs and international aid (OECD, 2005; OECD, 2009; Harmer & Basu Ray, 2009). Development of accountability frameworks within the humanitarian environment has become a means by which to both improve the quality of interventions to affected populations and provide donors a mechanism by which to measure the effectiveness of their financial contributions (Banatvala & Zwi, 2000).

The Good Humanitarian Donorship initiative was established in 2003 by a group of representatives from 16 donor governments, the European Commission, the OECD, the International Red Cross and Red Crescent movement, NGOs and academics. The aim of the initiative was two-fold: first, to provide a framework of 23 principles to guide implementation of official humanitarian aid to beneficiaries and aid organisations by donor governments and, second, through these principles the establishment of mechanisms in which transparent accountability of humanitarian funding and programming is monitored for beneficiaries and implementing organisations alike (Collinson, Buchanan-Smith & Elhaway, 2009).

Appropriate application of health interventions and the suitability of those interventions are based on recognised standards of practice being implemented in an acceptable timeframe (Leaning, Briggs & Chen, 1999). The Sphere Project established in 1997 aimed at improving both the delivery of humanitarian assistance and accountability (The Sphere Project, 2000). The latest edition of the handbook (2011) addresses the four technical areas of water supply, sanitation and hygiene promotion; food security and nutrition; shelter, settlement and non-food items, and health action.

The handbook also contains links to three Sphere companion standards in education, livestock and economic recovery (The Sphere Project, 2011). These technical guidelines provide a range of key indicators, guidance notes and the delivery of interventions based on an internationally recognised set of standards. These guidelines, however, whilst generally accepted by the international humanitarian community as recognised standards of practice in emergency settings, are not mandatory in their application. The guidelines have been criticised for not taking into consideration the many differences in cultural, political and security contexts (Dufour, Geoffrey, Maury & Grunewald, 2004). It is also recognised that the rigid and inflexible implementation of Sphere standards across the board has the potential to have a negative impact, with aid workers unable to apply a more flexible approach based on local contexts (Griekspoor & Collins 2001; Morris, Van Ommeren, Belfer, Saxena & Saraceno, 2007). McDougal and Beard (2011) further state that Sphere Standards are inappropriate for post-emergency population displacement and that more suitable standards need to be developed.

Development of Educational and Training Resources

The development of education and training resources for humanitarian disasters, complex emergencies, and relief activities has greatly increased. The various components of the Red Cross movement run specialised courses relative to their specific mandates. The International Federation of Red Cross and Red Crescent Societies (IFRC) conduct Field Assessment Coordination Team (FACT) and FACT Leaderships courses as well as Emergency Response Unit Training (ERU). The International Committee of the Red Cross (ICRC) in partnership with the World Health Organisation runs the Health Emergencies in Large Populations course aimed at improving professionalism in emergency settings (Humanitarian Assistance Training, 2014).

United Nations organisations such as the World Health Organisation and the Office for the Coordination of Humanitarian Affairs have similar courses whilst there is a plethora of training courses and information available through the UN Department of Humanitarian Affairs website Reliefweb (Bui, Cho, Sankaran & Sovereign, 2000). Internet-based resources from ICRC, IFRC, MSF, and Oxfam UK provide a large range of easily downloaded reference guides in MS Word² and PDF³ formats on health, water and sanitation, nutrition, livelihoods, program evaluations, assessment guides, HIV/AIDS and assorted technical briefing notes.

Whilst Western trained health professionals have a legal and professional obligation to maintain their specialised registration qualifications with their respective registration boards (AHPRA, 2015), there is currently no requirement for humanitarian aid workers to meet minimum training requirements (VanRooyen, 2013). Furthermore there is no legal or compulsory framework for continued professional development within humanitarian related fields. Health practitioners as part of a *best practice model* are required to have knowledge of current best practice guidelines, changes to their professional practice and code of conduct as well as current research within their domain of expertise (Continuing Professional Development, 2015).

² This a registered trademark

³ This a registered trademark

Although it has been recognised that accountability issues of donor practices has somewhat improved in line with the principles of the Good Humanitarian Donorship initiative, it is also recognised that downward accountability towards the beneficiaries of aid is less advanced (Kilby, 2006; Walsh & Lenihan, 2006). As Perouse de Montclos (2012) points out, often evaluations of NGO and intergovernmental agency programming are carried out by those funding the programs and not those benefitting from the interventions themselves.

Moreover, as VanRooyen (2013) states, “in addition to challenges of coordination and accountability, there is little attention paid to the effectiveness of aid interventions” (p.13). Although non-binding, the Humanitarian Accountability Partnership (HAP) established in 2003 (Humanitarian Accountability Partnership, 2016) and the Sphere Project (The Sphere Project, 2011) established in 1997 are examples of initiatives developed by members of the humanitarian community to improve the level of accountability towards beneficiaries through the implementation of peer-reviewed standards of practice. However, as Crack (2013) points out, “they are voluntary undertakings with no formal penalties for non-compliance” (p.302).

One of the main issues surrounding accountability mechanisms in humanitarian practice is the voluntary nature of standards and codes of conduct. Even *The Code of Conduct for The International Red Cross and Red Crescent Movement and NGOs in Disaster Relief*, established in 1994 and with 546 signatories of humanitarian organisations relies on “*self-policing*” (Code of Conduct, n.d).

2.8 Summary

The humanitarian sphere of operations is an evolving, dynamic and fluid environment. The effect of natural disasters and complex emergencies generates—in varying degrees—both the destruction of major infrastructure and a breakdown of key government service programs. International humanitarian law has provided legal frameworks for the protection of civilians and a broadening diligence towards human rights but implementation and adherence is still widely variable and debateable. Differential timeframes of rapid and slow-onset disasters as well as conflict-related emergencies means that the humanitarian environment is constantly readjusting the

balancing of resources and capacity (De la Torre, Dolinskaya & Smilowitz, 2012). The International Red Cross movement plays an integral role in providing relief in times of conflict and natural disasters as well as longer-term development activities.

The next chapter presents the concepts surrounding knowledge management and how valuing and using knowledge as a strategic asset to capture, create, innovate, share and apply knowledge, can influence and strengthen individuals and competitive business environments. The chapter also explores how good knowledge management can be translated into improved decision-making processes within the humanitarian fields of practice.

Chapter 3: Literature Review

All men by nature desire knowledge.
Aristotle (384 BC-322 BC) Metaphysics

3.0 Introduction

The purpose of this review was to establish the underlying understanding of knowledge management processes and how these processes have become a fundamental pillar in good decision making and the broader knowledge economy. This chapter first examines the concept of knowledge and how we as individuals process, use and access acquired knowledge and how that translates into actionable knowledge outcomes. Next, the attributes of good knowledge management are explored in competitive business environments and humanitarian action. Then, an examination is made of Boyd's decision-making model, and how better knowledge management practices and advances in technology can improve humanitarian action.

3.1 Knowledge

McInerney (2002) defines knowledge as “the awareness of what one knows through study, reasoning, experience or association or through various other types of learning” (p.1009). McInerney (2011) further point out that the benefit in the application of knowledge management practices “is its role in advancing organisation knowledge and the role knowledge plays in making decisions” (p.57). Epistemology as defined by the Oxford dictionary (2008) is “the branch of philosophy that deals with knowledge” (p.334). Defining knowledge has become a persistent and dynamic deliberation of interpretations by practitioners of epistemology (McInerney & Koenig, 2011). What is agreed is that there is no one clear and accepted definition of knowledge (Yih-Tong Sun & Scott, 2005; Wallace, 2007). Davenport and Prusak (1998, p.5) define knowledge as:

a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of

knowers. In organisations, it often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices, and norms.

To understand the concept of knowledge and how we use it, we need to firstly understand and differentiate between the concepts of data, information and knowledge. Data is raw information without a given context. Numbers on a spread-sheet, facts or pictures hold no significance until given context (Groff & Jones, 2003). Data provides the first step and raw building block in the creation of information. As Davenport and Prusak (1998) clearly articulate, “data describes only part of what happened: it provides no judgement or interpretation and no sustainable basis for action” (p. 3).

Once data is given context it becomes information that has both value and meaning (Prusak, 1997). Wiig (1993) further supplements Prusak’s key variables by adding that the transformation of data into useable information needs to have “a discernible organisation so that it will have relevance to a situation” (p. 81). For information to be beneficial it needs to have value. Davenport and Prusak (1998, p.4) identified five methods of turning data into trustworthy information by adding value to it through the five Cs of:

1. Contextualisation (identifying the purpose of the data collection)
2. Categorisation (key components of the data)
3. Calculated (data has been analysed)
4. Corrected (any errors in the data have been removed)
5. Condensed (the data has been summarised into a more clear and concise form)

Knowledge then becomes a combination of the information and how that information is understood and acted upon by the individual (Groff & Jones, 2003). People access two main sources of knowledge to make decisions (Wiig, 1993; Buono & Poulfelt 2005; Dalkir, 2005; Wallace, 2007).

The first source of knowledge, *tacit knowledge*, is the accumulation of skills, experience and competence individuals learn over a period of time through accumulation of experiences. This personalised source of knowledge is preserved and carried around in the human mind (McInerney 2002; Kaklauskas, Amaratunga &

Haigh 2009). Tacit knowledge is considered difficult to articulate into words or texts, and difficult to visualise and express (Polanyi 1967; Wallace, 2009). Tacit knowledge can be expressed as having two components: technical and cognitive (Nonaka & Takeuchi, 1995). The technical component can be defined simply as “know-how”. This type of knowledge is accumulated through our professional or personal life experiences (Firestone & McElroy, 2003). As Polanyi states (1967): “We can know more than we can tell” (p.4).

Nonaka and Takeuchi (1995) use the analogy of the master craftsman to better describe the technical nature of tacit knowledge; “A master craftsman, for example, develops a wealth of expertise at his fingertips after years of experience. But he is often unable to articulate the scientific or technical principles behind what he knows” (p.8). The second component of tacit knowledge is cognitive, how individuals incorporate beliefs, attitudes and perceptions of the world into a functioning reality. Functioning reality—when combined with personal experiences and “know how”—allows individuals to utilise acquired knowledge to function without having to think about how to function (Nonaka & Takeuchi, 1995; Chilton & Bloodgood, 2010).

The second source of knowledge, *explicit knowledge*, is information that can be codified and easily expressed in both verbal and non-verbal methods such as documents, data bases, or verbally through lectures or talks (Wiig, 1993; Nonaka & Takeuchi, 1995). Sources of explicit knowledge can be easily accessed, retrieved and disseminated from repositories such as computers or text books. Types of explicit knowledge can include concepts, facts and figures, a variety of technical benchmarks, lessons learned documents and best practice standards, video clips or diagrams (Wiig, 1993; Wiig, 2004). Such knowledge can be comprehensive and tailored to identifiable needs through knowledge management processes such as knowledge taxonomies, decision trees, and mapping the intellectual assets of an organisation (Dalkir, 2005; Kaklauskas et al. 2009; Reedy, 2009).

Wallace (2007) argues that explicit knowledge without context is not usable or actionable knowledge. Tacit knowledge therefore can be used without explicit knowledge but explicit knowledge needs to be understood, to have context to be of value (Polanyi, 1967; Yih-Tong Sun & Scott, 2005). An example of this would be

public health data on crude mortality rates (CMR), the number of deaths per 10,000 people per day. The Sphere standards, an accepted international framework to meet emergency needs in disasters, identifies baseline data of an acceptable death rate by region (The Sphere Project, 2011). The CMR provides one half of an equation. The situation or context provides the second half of the equation. Understanding the significance of both the CMR and context provides the baseline information for appropriate program development using actionable knowledge.

The use of tacit and explicit knowledge has been described as “highly interdependent and complementary” (McIver, Lengnick-Hall, Lengnick-Hall, Ramachandran, 2012). Nonaka and Takeuchi (1995) identified knowledge creation as a conversion process whereby tacit and explicit knowledge interact within a socialisation framework to capture and create useable knowledge as outlined in Figure 1. This process—often termed the knowledge spiral—provides a framework for the transfer of tacit-to-explicit knowledge (externalisation), explicit-to-tacit knowledge (internalisation), tacit-to-tacit knowledge (socialisation) and explicit-to-explicit knowledge (combination) (Wiig, 1993; Firestone & McElroy, 2003; Bali, Wickramasinghe, Lehaney, 2009).

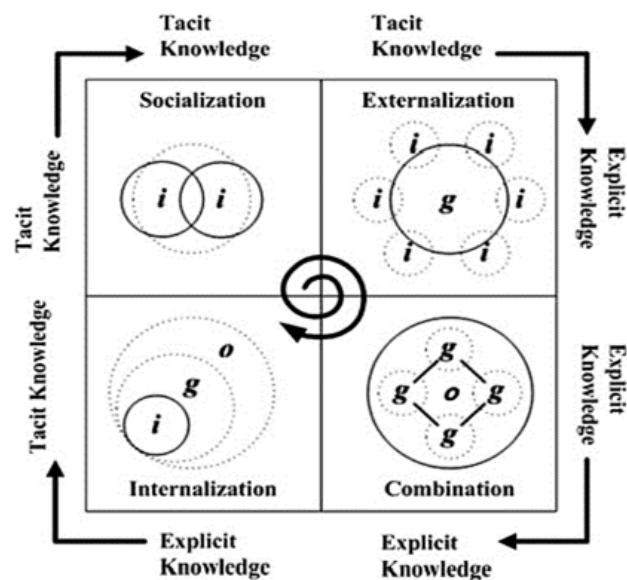


Figure 1: SECI Model (Nonaka & Takeuchi, 1995).

Both tacit and explicit knowledge typologies can be used to form actionable knowledge which is the combination and utilisation of knowledge to make decisions, guide actions, analyse situations and to create new concepts and methodologies (Wiig,

1993; Nonaka & Takeuchi, 1995). The United Nations Office for the Coordination of Humanitarian Affairs demonstrated how it achieved actionable knowledge in their Plan and Budget 2012-13: “Lessons identified through evaluations, audits and performance monitoring, are now being translated into action through more-robust planning, budgetary and management decision-making processes that are evidence based” (pp.8-9).

3.2 Knowledge Management

The aphorism, ‘knowledge is power’, holds true in today’s digitally connected world. Knowledge management, though a relatively new area of research, is not in itself new (Alavi & Leidner, 2001; Wiig, 2004). According to Stankosky (2005) humanity has progressed past the information age to enthusiastically embrace the age of knowledge. It draws from appropriate multi-disciplinary tools to manage and foster the use of information, to better improve operational environments through a more refined, informed and evidence based information and knowledge process (Rao, 2005, p.3-5; Wickramasinghe & Von Lubitz, 2007). The origins of knowledge management can be found in such diverse fields of practice as: organisational science, human resource management, information technology, technical writing and journalism, education and training, cognitive psychology, anthropology, storytelling and communication studies, and library sciences (Liebowitz , 2009, p.3; Dalkir, 2005, p.5).

Although varying definitions of knowledge management are available (Firestone & McElroy, 2003; Tafere, 2014) this present research will use Dalkir’s (2005, p.3) definition as it clearly articulates the value of knowledge as a process to augment intellectual capital at both the organisational and individual level:

The deliberate and systematic coordination of an organisation’s people, processes, and organisational structure in order to add value through reuse and innovation. This coordination is achieved through creating, sharing, and applying knowledge as well as through feeding the valuable lessons learned and best practices into corporate memory in order to foster continued organisational learning.

As such, the process of knowledge management has significant value to organisations because it allows them to organise corporate knowledge, value and capture institutional memory, innovate, share information and, most importantly, generate new knowledge through the participation of members in fields of practice networks (Liebowitz, 2009; Hong, 2011). It is this understanding of the interconnectivity between tacit and explicit knowledge repositories and the potential benefits to business and organisations that they are able to utilise and leverage, that has stimulated the need to understand and manage knowledge management process accordingly (Bixler, 2005). Good business understands that the appropriate capture, creation and use of information and knowledge establishes not only competitive advantage but strengthens the organisation through expansion, innovation and a more effective application of its core business strategy (Levy, Loebbecke & Powell, 2003; Nonaka & Takeuchi, 1995; Strong, Davenport & Prusak, 2008).

The utilisation of knowledge management processes as a key component in the globalised competitive business environment has become both an operational strategy for future innovation, and also one of survival to maintain market share and or advantage. It has become an essential resource for those starting a business and those already well-established (Bixler, 2005; Kannan, Aulbur & Haas, 2005). The acquisition and use of knowledge as an economic driver and resource has become a fundamental pillar of good organisations (Heinrichs & Lim, 2005). The use of information and knowledge for social, political and economic benefits has led to the creation of the knowledge economy. As defined by the Oxford Dictionary (2008) the knowledge economy is “an economy in which growth is dependent on the acquisition, spread, and use of information, rather than the traditional means of production” (p.562).

In his frequently cited book *Post-capitalist Society*, Peter Drucker explains the renaissance of knowledge management as a shift in how we identify and value capital resources (1993, pp. 1-8). The physical economic resources of land, labour and production have been replaced by the knowledge worker where individuals own their intellectual capital and are able to move freely in applying such knowledge. Drucker: “Instead of capitalists and proletarians, the classes of the post-capitalist society are knowledge workers and service workers” (1993, p.5).

Wiig (1993) defines a knowledge worker as an “individual who makes her/his contributions through exercising of intellectual expertise and understanding” (p.458). The Compact Oxford English Dictionary (2008) definition—although different from Wiig’s—adds the obvious underlining function: “A person whose job involves handling or using information” (p.363). Whilst knowledge workers add capital to an organisation or business, when they leave, their tacit knowledge or *know how*, with its inherent difficulty to articulate and disseminate, also leaves with that individual (Buono & Poulfelt, 2005).

Avoiding such loss or forfeiture of institutional knowledge has become an essential operational strategy by capturing, storing, and utilising and, thereby, retaining significant institutional memory (Alavi & Leidner, 2001; DeLong, 2004; Anantatmula, 2005). Loquerico, Hammersley and Emens (2006) found that within humanitarian organisations staff turnovers and the loss of institutional memory had a negative impact on program quality and effectiveness, as well as incurring a financial cost to the organisation. Information collected from humanitarian organisations working in Darfur and Khartoum in the Sudan found that high staff turnover contributed to loss of operational knowledge and situational awareness and it impacted on timely decision-making processes (Kruke & Olsen, 2012).

It is widely accepted within current literature that knowledge management means more than having large repositories of data, best practice guidelines and other easily accessed forms of information (Nonaka & Takeuchi, 1995; Wiig, 2004). It is the application and use of the information, the creation and growth of new knowledge and its sharing and dissemination that adds value to both the individual and the organisation (Firestone & McElroy, 2003; Huggins & Izushi, 2007). Mishra, Fuloria and Bisht (2012) used pre-existing data from 1976 to 2006 of approximately 10,000 disasters in the Tamil Nadu region in India. Their findings highlighted two important points of concern: that there was an increased risk of natural disasters in the region, and that there were a lack of adequate disaster frameworks and resources to deal with the potential threats. This example shows that effective use of data and information not only impacts an organisation’s ability to prepare for future disasters but provides insight into areas that need addressing before disasters occur in order to maximise effectiveness of response.

Choi, Millar and Wong (2005) identify knowledge management processes as “fundamental in facilitating the sharing of explicit and tacit knowledge” (p.10) and the transfer of that knowledge back into organisations. For organisations to create value from knowledge, Nonaka and Takeuchi (1995, p.6) argue that knowledge creation is a foundational process that leads to continuous innovation and competitive advantage. Peter Drucker (1993) argues that organisations need to constantly reevaluate their own knowledge so that out-dated or obsolete information spurs the creation of new and innovated knowledge.

McElroy (2000) describes the value of knowledge “as the last sustainable untapped source of competitive advantage” and that “knowledge is theoretically infinite” (p.195). The aphorism ‘a good tradesman doesn’t blame his tools’ can be extrapolated to state that it is the application of knowledge as a process, rather than knowledge as a tool, that creates benefits to an organisation. Thus, knowledge management, as does the construction of a building, requires a strong supporting structure to build upon solid foundations. Knowledge management processes provide the theoretical framework in which organisations can consolidate and build their knowledge foundation as a functional resource. A summary of knowledge management cycles proposed by authoritative writers is listed in Table 3.

Table 3: Knowledge Management Cycles

Author	Knowledge Management Cycles
Wiig	Creation, Sourcing, Compilation, Transformation, Dissemination, Application, Value realisation
Davenport & Prusak	Generation and Acquisition Codification and Coordination Transfer
Meyer & Zack	Acquisition, Refinement, Store and Retrieve Distribution, Presentation
Firestone & McElroy	Individual and Group learning, Knowledge formulation, Informal acquisition, Knowledge evaluation Knowledge integration

Sources: Wiig, 1993; Davenport & Prusak, 1998; Meyer & Zack, 1996; Firestone & McElroy

Dalkir (2005, Chap 2) compared various approaches to the knowledge management cycles and found that the progression of the knowledge cycle could be grouped into three progressive stages:

1. Knowledge capture and creation
2. Knowledge sharing and dissemination
3. Knowledge acquisition and application

However, Liebowitz (2009, p.4) identified four key stages to the knowledge management process as:

1. Knowledge identification and capture
2. Knowledge sharing
3. Knowledge application
4. Knowledge creation

Whilst there is a plethora of research recognising the benefits of a wide range of knowledge management application processes in areas such as business environments and organisational performance (Drucker, 1993; Davenport & Prusak, 1998; Groff & Jones, 2003; Bali, Wickramasinghe & Lehaney, 2009), its application in humanitarian actions has been somewhat slow to gain traction and parallel the advancements seen in business of a more efficient and effective scope of practice as well as increased value-added economic outcomes (Powell, 2006; Wickramasinghe, Bali & Naquib, 2006; Von Lubitz, Beakley & Patricelli, 2008; Kaklauskas, Amaratunga & Haigh, 2009). This is somewhat surprising as the recognition of knowledge as both a key framework and economic commodity enabling business and organisations to be more effective, efficient or *to do more with less* is ideally suited to the humanitarian environment, where current humanitarian needs of vulnerable populations often surpass existing appropriate physical and financial resources of humanitarian organisations (VanRooyen et al., 2001; Global Humanitarian Assistance, 2006, ALNAP, 2015).

Although generally agreed that humanitarian action started a level of self-reflection, renewal and professionalisation from the late 1980s or early 1990s (Moke & Stoll, 2010; Barnett, 2010), there still remains significant concerns around the contextual understanding of disasters, changing patterns of population vulnerability, inadequate

field assessments and fissures in humanitarian response, which remain key issues in the delivery of effective and appropriate aid (Moe & Pathranarakul, 2006; OCHA Evaluations Synthesis Report, 2011; Senevirate, Baldry, Pathirage 2010; Executive Summary HRI, 2011; Ramalingam & Knox Clarke, 2012). As humanitarian aid broadens its operational activities and become more complex, practitioners are required to have a broader skill set and more specialised knowledge, whilst also recognising that appropriate knowledge to make informed decisions is often required and drawn from outside traditional spheres of operational or specialised knowledge (Von Lubitz et al., 2008; Smith & Young, 2009; Senevirate et al., 2010; ALNAP Lesson Paper, 2011).

The literature recognises that both knowledge creation and innovation are increasingly necessary to augment best practice improvements in professional practice (Nonaka & Takeuchi, 1995; Heinrichs & Lim, 2005; Sexton & Lu, 2009; Koria, 2009; Senevirate et al., 2010). Knowledge capture and creation is identified as the first stage of knowledge management processes (Table 3). It is not difficult to understand that the importance and validity of accurate data and information generation and its contextual understanding drives appropriate action, and that failure to collect and understand information leads to significant negative outcomes to vulnerable populations (Powell, 2006; Moe & Pathranarakul, 2006; OCHA Evaluations Synthesis Report, 2011; Haver, 2011).

As the humanitarian sector in its march towards professionalism is challenged to be more innovative, more effective in its intervention strategies and more transparent to donors and beneficiaries (Cosgrave, 2008; Moke & Stoll, 2010; Ramalingam & Knox Clarke, 2012), the generation and the application of quality *data-to-information-to-actionable knowledge* remains an area for improvement (Darcy & Hofman, 2003; Featherstone & Nagra, 2012). Humanitarian crises generate significant amounts of raw data and information. The importance of accurate contextual information is critical in humanitarian action as speed of engagement is often essential in reducing and minimising negative outcomes for affected populations (Bui, Cho, Sankaran & Sovereign, 2000; Huder, 2012; Lagadec, 2012).

Wiig (1993, p.20) uses a three pillar framework to describe the contextual nature of knowledge, its value and management (Table 4). The sequential steps from pillar one

to three are a commitment to understanding and respecting the process of knowledge capture, creation, validation and revalidation for it to be of value for continuous action or management.

Table 4: Three Pillars of Knowledge Management

Pillar One: Explore the Knowledge and its Adequacy	Pillar Two: Find the Value of Knowledge	Pillar Three: Manage Knowledge Actively
Survey knowledge	Appraise and evaluate	Synthesise knowledge
Categorise knowledge	value of knowledge and	related activities
Analyse knowledge and knowledge related activities	related actions	Handle, use, and control knowledge
Elicit and codify knowledge		Leverage, distribute, and automate knowledge
Organise knowledge		Implement and monitor knowledge related activities

Source: Wiig, 1993, p.20

Kent (2004) found that food relief given in response to famine in south-east Ethiopia in 2001 was based on a preconceived plan of action. A failure to collect and understand the relevant information significantly affected neighbouring Somali farmers and led to unnecessary population migration into the areas of food distribution. USAID, the organisation in question, “defended its response on the grounds that, in such situations, it was normal” (Kent, 2004, p.7). More recently Featherstone and Nagra (2012) in their case study of Afghanistan found that a lack of accurate data collection continued to impede both an understanding of population needs and coordination of action. Clermont, Sanderson, Sharma and Spraos (2011) in their influential paper on lessons learned in Haiti found that improvements in “linking analysis to action” (p.20) needed to be centred on improved assessment methodology, a better understanding of both social context and information analysis, which in turn would contribute to better program planning. The Humanitarian Response Index 2011 Focus on Haiti (HRI 2011, Focus on Haiti) found that lessons learned from past disasters were not implemented and that:

Initial relief efforts were partially successful, but hampered by a lack of experience among humanitarian organisations to deal with major disasters in

urban setting, poor planning and coordination, and a lack of integration with Haitian authorities and civil society organisations (2011, p.2).

Whether viewed as sequential steps or stages, all approaches to knowledge management view knowledge as a dynamic resource that, managed efficiently and effectively, will significantly benefit organisations productively and economically. Understanding the dynamic nature of knowledge and how valuing knowledge as an effective resource and tool has informed this present research. However, if the decision making and knowledge management processes are to be improved to both support and enhance operational outcomes, a theoretical framework is required to drive innovations in complex humanitarian environments.

3.3 Boyd's OODA Loop

The Observe, Orientate, Decide and Act (OODA) Loop is a decision-making framework developed as a means of out-thinking and out-maneuvring an opposing military force (Osinga, 2007). The framework was developed by Colonel John Boyd based on his experiences as a fighter pilot during the Korean conflict in 1952-53. The kill ratio of the American F-86 Sabre plane in contrast to the technologically superior Korean MIG-15 was 10:1. His later analysis found that although better training of the F-86 pilots was one variable, the fact that the Sabre had an enhanced canopy view allowed for quicker identification of the Mig-15 pilot's action; subsequently, a significant contributing factor was that faster decisions could be made to counteract the enemies' manoeuvres (Osinga, 2007, p.25). The OODA Loop has become a fundamental pillar in military decision making, strategic planning and war operations at the highest command and control levels (Bryant, 2006; Maccusih, 2011).

Advances in technology have seen developments in a variety of sophisticated information collecting systems such as unmanned drones and satellite surveillance systems (Adams, 2001; Bryant, 2006). The use and access of World Wide Web - technology such as Geographic Information Systems (GIS), Global Positioning Systems (GPS), and aerial imagery has generated large amounts of useable data and information for use in complex humanitarian and disaster environments by both governments and aid organisations to analyse and improve response mechanisms

(Humanitarianism in the Network Age, 2012; Meier, 2012; Kawasaki, Berman & Guan, 2012). However, a potential limiting factor as increases in the amount and detail of information is collected is that the requirements for more and detailed analysis will also need to keep pace. Heal (2012) describes the concept of ‘Overwhelmed By Events’ (OBE) as a situation in which massive amounts of information overload the response capacity to analyse it and “older information is either deleted (forgotten), reprioritised (jumbled), or neglected (overlooked)” (p.349).

OCHA’s Humanitarianism in the Network Age paper (2012) observes that workers struggle to manage large amounts of information and that “in time-constrained situations, decision makers can only process a certain amount of information, and in situations where there is limited understanding of the nature of the problem, the search for more data can obscure the need for more analysis” (p.38). The amount of globally available data in 2005 was 150 exabytes (Humanitarianism in the Network Age, 2012). By 2013, global digital usage was 4.4 zettabytes. By 2020, digital data that is created and copied is predicted to reach 44 zettabytes, equivalent to around 44 trillion gigabytes (EMC, 2014). According to Gaonkar, Bojewar & Das (2013), “the world’s information is doubling every two years” (p.547). As Liang & Xiangsui state, “we can say with certainty that modern information technology is the most important revolution in the history of technology” (p.21).

To better manage the flow and quality of data-to-information-to-action Von Lubitz, Beakley and Patricelli (2008) proposed that Boyd’s OODA Loop has value as a decision-making framework in disaster environments. The OODA Loop, although primarily used by the military, would be perfectly suited to the gamut of humanitarian action as a participatory decision-making framework in complex humanitarian emergencies not just disasters. The OODA Loop is applicable to the varied operational humanitarian environments as parallels exist between the nature of military style conflict and the consequences of man-made and natural disasters.

Table 5 identifies the similarities related to the consequences of conflict, complex humanitarian emergencies and natural disasters. Both military and humanitarian action generates large volumes of data and information that needs to be collated, analysed and contextually understood (Adams, 2001; Bryant, 2006; Humanitarianism in the

Network Age, 2012). The changing role of humanitarian action requires new methods of information management and application (Bizimana, 2006, p.38-39; OCHA in 2012 and 2013) and demands existing gaps in humanitarian practice be addressed (Cosgrave, 2008).

Table 5: Similarities Related to Conflict, Complex Humanitarian Emergencies, and Natural Disasters

Conflict	Complex Humanitarian Emergencies	Natural Disasters
Combat related deaths	Combat and civilian related deaths	Increased population fatalities
Population displacement	Population displacement	Population displacement
Disease	Disease	Disease
Malnutrition	Malnutrition	Malnutrition
Increases in morbidity and mortality	Increases in morbidity and mortality	Increases in morbidity and mortality
Breakdown of health services	Breakdown of health services	Breakdown of health services
Loss of livelihoods and possessions	Loss of livelihoods and possessions	Loss of livelihoods and possessions
Breakdown of law	Breakdown of law	
Breakdown of social systems and services		Breakdown of social systems and services
Disruption of education services	Disruption of education services	Disruption of education services
Destruction of local infrastructure	Destruction of local infrastructure	Destruction of local infrastructure

Sources: Burkle, 2000; Banatvala & Zwi, 2000; Lautze et al., 2004; Salama et al., 2004; Young, Borrel, Holland, Salama, 2004; Connolly, Gayer, Ryan, Salama, Spiegel, Heymann, 2004; Nel & Righarts, 2008; Craig, 2012; Howard, Hossain & Ho, 2012; Frerks, 2012.

Both military and humanitarian systems operate in highly unpredictable and rapidly changing environments where speed of correct decision making and action are paramount for successful operations (Adams, 2001; Bryant, 2006; Saab, Maldonada, Orendovici, Tchouakeu, Van Gorp, Zhao, Maitland, Tapia, 2008; Patricelli, Beakley,

Carnevale, Tarabochia & Von Lubitz, 2009). The OODA Loop is a four-stage conceptual framework to enhance and facilitate decision making in rapidly changing, dynamic and unpredictable environments and is ideally suited to humanitarian action (Von Lubitz & Wickramasinghe, 2006 *a*). The military use of the OODA Loop is based on the speed in which the Loop can be used to collect, analyse and act in response to the enemy's actions or reactions within decreasing time frames. As highlighted by Boyd's observation, the Sabre jets' kill ratio was higher than superior opponents because pilots collected, analysed, decided and acted more quickly than the enemy (Huder, 2012). Information superiority, as described by Von Lubitz and Wickramasinghe (2006 *b*):

provides an asymmetric operational advantage that not only assures complete control of the direction and tempo of all activities in a collaborative yet highly coordinated manner, but also facilitates attainment of the objective in the most effective and economical way possible (p.15).

Osinga (2007) argues in his analysis of Boyd's OODA Loop that the speed of the OODA Loop, whilst important, will fail to produce the outcome necessary because "information superiority is useless" (p.236) if actionable knowledge is unable to drive appropriate actions. Hence the ability of the OODA Loop to produce effective action is the interaction of the four stages of the Loop which is able to vary the speed of engagement to suit the operational environment (Osinga, 2007, p.235-236; Heal, 2012, pp.351-356). IASC Real-Time Evaluation of the Humanitarian Response to the Horn of Africa Crisis in Ethiopia (Sida, Gray & Asmare, 2012) found that although the needs assessment system was "highly efficient" (p.10) and yielded accurate data, the approval for action, based on the results was somewhat unhurried. In turn, this meant that the humanitarian response was unable to react in a timely manner resulting in a growing crisis, increased mortality rates and acute hunger in displaced populations.

The four interlinked stages of Boyd's OODA Loop are Observe, Orientate, Decide, and Act, as outlined in Figure 2. Both the decision and action stages of the loop are then fed back into the observation stage to verify appropriateness of the decision and effectiveness of the action thereby creating a self-perpetual cycle of validity of information-to-action. Gherman (2010) argues that because the first three stages are

information centric and drive the final stage of action, the success of the OODA Loop revolves around the collection, interpretation and application of information into actionable knowledge.

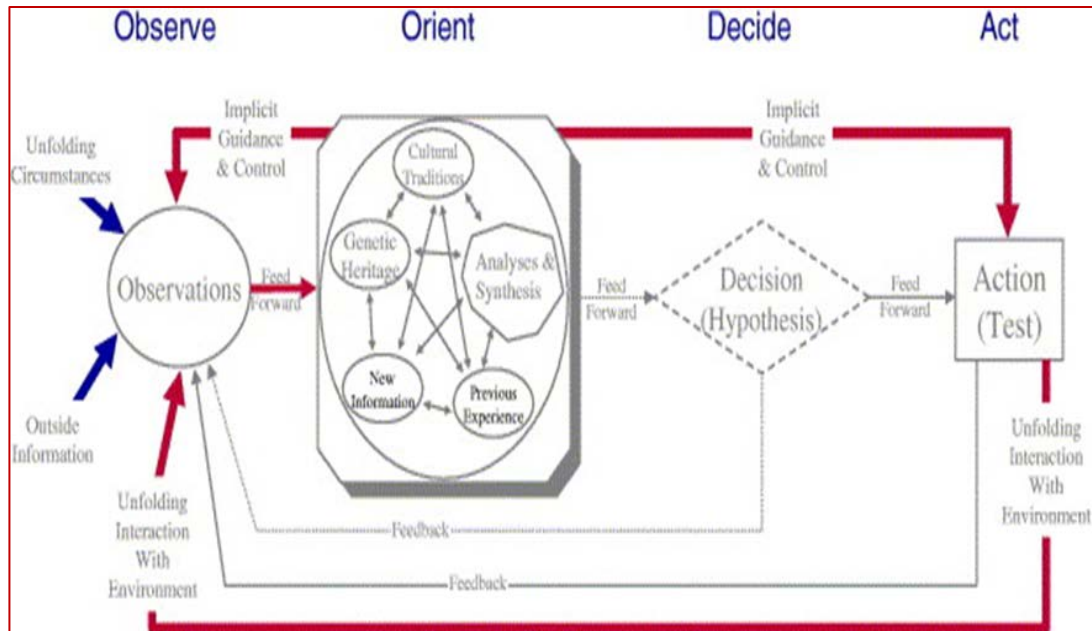


Figure 2: Boyd's OODA Loop (Von Lubitz & Wickramasinghe, 2006 a, P. 334)

The observation or first cycle stage is where the collection of data and information is started. Von Lubitz et al. (2008) explain that during this stage various data and information inputs are collected. This includes internal and external inputs consisting of the current situation, raw data from the field, baseline data prior to the event and other social, contextual and operational data and information able to be collected. The collection of both data and information becomes a continuous cycle as information is passed forward and used in the next stages and analysed through its interaction with the operational environment. This occurs simultaneously whilst other relevant data and information is gathered, assembled and passed forward for analysis and action. The observation stage becomes both a collection point as well as a means of providing internal validity of accuracy of action during the preceding stages.

Von Lubitz et al. (2008) also point out that this is where actionable knowledge is first produced. It is at this first juncture that the reliability, quality and accuracy of data and information is critical in providing effective and appropriate interventions (Patricelli et al., 2009; Ezard & Lewis, 2012), as well as indicators by which to measure

effectiveness of interventions and the importance of understanding the operational context (Graiss et al, 2009; Garfield, Blake, Chatainger & Walton-Ellery, 2011). This holds significant operational consequences as Rodon et al. (2012) identified in a case study of an MSF intervention in Somalia, that failure to understand the cultural aspects of a health-related project led to them directly becoming targets of violent reprisals.

The second or orientation stage of the OODA Loop is where information and actionable knowledge from the observation stage is analysed and evaluated in terms of how this interacts with the social and cultural practices of the host community. Furthermore any new information, previous relevant history or experience of similar circumstances is reviewed (Von Lubitz et al, 2008). This then forms the basis or hypothesis for actionable interventions in the third stage which then informs the final stage or action phase where implementation of the proposed intervention occurs. During the observation stage, notes Von Lubitz et al. (2008), a decision support system (DSS) adds value to help support decision-making processes and minimise stress induced error. Power (2003) describes a DSS as a “broad category of information systems” (p.22) that can be targeted to individuals or organisations using a variety of technology-based systems.

The OODA Loop provides a comprehensive decision-making framework that helps to address some of the identified information needs of humanitarian action. It does, however, need to be modified to include a more defined, collaborative and participatory approach with local and national stakeholders in the area of operations. A key criticism of humanitarian action has been a lack of consultation with local populations in assessment, analysis, understanding situational context and appropriate intervention strategies as highlighted by the Humanitarian Response Index reports for the 2010 Pakistan floods and 2010 Haiti earthquake (HRI 2011, Focus on Pakistan; HRI 2011, Focus on Haiti).

A modification of Boyd’s OODA Loop must include local authorities and beneficiaries as an integral part of the decision-making framework to facilitate a more participatory and context-specific driven intervention approach. Boyd’s model was developed with the sole purpose of out-thinking and out-maneuvring the enemy. Although within the humanitarian environment there is no armed enemy to engage, the enemy is replaced

by the consequences of man-made or natural disasters and the need to minimise identified or potential negative outcomes in either short or long-term unpredictable environments. The need to collect, analyse, decide and act remains the same and the ability to vary the speed of the cycle to produce time-appropriate action provides the direction and flexibility needed across the spectrum of humanitarian interventions. Figure 3 shows the modified component to Boyd’s OODA Loop.

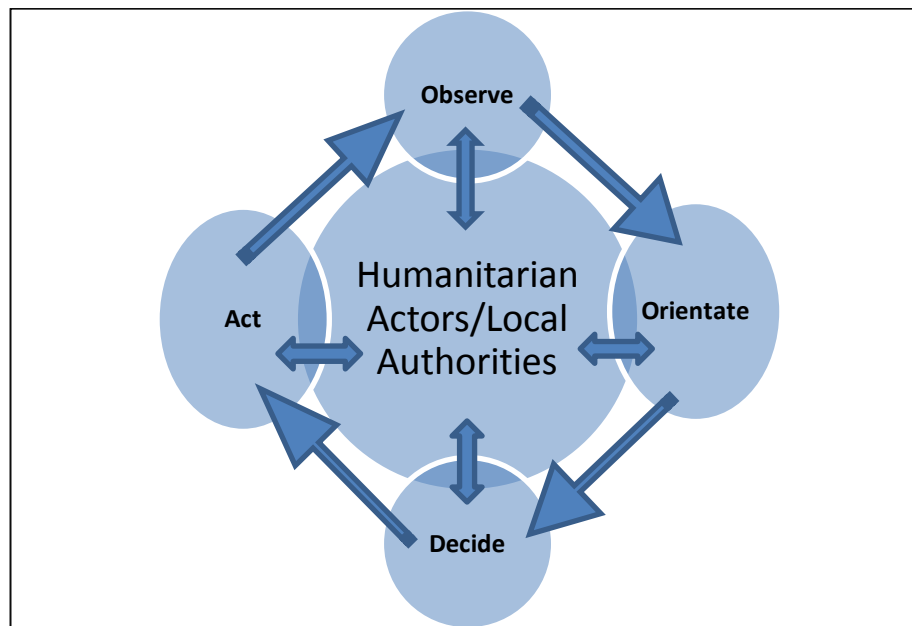


Figure 3: Modified OODA Loop with Integrated Collection, Analysis, Decision-Making and Implementing Authorities

3.4 Decision Support Systems

The use of technology-based DSS to enhance and standardise the collection of data and information and to provide guidelines for appropriate responses has become common place in a wide variety of professional fields including medicine and aviation. According to Hine, Farion, Michalowski and Wilk (2009), evidenced-based medicine (EBM) is the combination of quality research and expert clinical expertise that has become the framework for implementing clinical decision-making processes. They further identify that information technology has become increasingly important in managing the multitude of necessary information resources such as “electronic medical records, clinical practice guidelines, and academic and practitioner journals” (Hine et al., 2009, p.18).

In Western health institutions the use of clinical decision support systems (CDSS) is common place. In Australia and New Zealand advanced life support resuscitation guidelines for infants, children and adults are used by health and medical institutions in the form of explicit algorithm flow charts. They allow for a quick identification of best practice guidelines in crisis and high stress periods for life saving interventions (The Australian Resuscitation Council Online, n.d). The Australian and New Zealand College of Anaesthetists (ANZCA) has endorsed clinical guidelines to facilitate clinical decision making in a variety of scenarios (ANZCA Endorsed Guidelines). Below is a small snapshot of available guidelines:

- Anaphylaxis Management Guidelines (see Appendix 7)
- Malignant Hyperthermia Crisis Management
- Management of Severe Local Anaesthetic Toxicity
- National Recommendations for User-applied Labelling of Injectable Medicines, Fluids and Lines
- OSSIE Guide to Clinical Handover Improvement
- Patient Blood Management Guidelines
 - Module 1 Critical Bleeding/Massive Transfusion
 - Module 2 Perioperative
 - Module 3 Medical
- World Health Organisation Surgical Safety Checklist (Australia & New Zealand Edition)

As part of the ANZCA Code of Professional Conduct (n.d.) “Anaesthetists should apply the principles of evidence based practice and engage in planning, undertaking and measuring practice improvement activities” (p.9). Pilots use a variety of decision support systems (DSS) to ensure proper safety and operational requirements are met pre-flight, during the flight, post-flight and during emergency situations (Degani & Wiener, 1990). Aviation emergencies are high stress, time-critical events and pilot reaction and interaction within this environment “must be performed correctly” (Burian, Barshi, Dismukes, 2003, p.2). According to Degani & Wiener (1993) checklist procedures “must be designed so that a flight crewmember will not need to rely upon his memory for items to be checked” (p.2).

3.5 Improving Humanitarian Knowledge Management Practice

The humanitarian sector is slowly moving from a semi-professional field of practice towards a profession constructed around evidence based practice, accountability, improved data collection, analysis and decision-making processes. However, the practice of humanitarian aid is still seen as anecdotal rather than evidence based (Mazurana, Benelli, Gupta, Walker, 2011; Knox Clarke & Darcy, 2014). According to Australia's national peak body for professions, Professions Australia (2015), the definition of a profession is:

a disciplined group of individuals who adhere to ethical standards and who hold themselves out as, and are accepted by the public as possessing special knowledge and skills in a widely recognised body of learning derived from research, education and training at a high level, and who are prepared to apply this knowledge and exercise these skills in the interest of others. It is inherent in the definition of a profession that a code of ethics governs the activities of each profession. Such codes require behavior and practice beyond the personal moral obligations of an individual. They define and demand high standards of behavior in respect to the services provided to the public and in dealing with professional colleagues. Further, these codes are enforced by the profession and are acknowledged and accepted by the community.

The Compact Oxford English Dictionary of Current English (2008) further defines a profession as “an occupation that involves training and a formal qualification” (p.812). As identified in Chapter 2, humanitarian practice lacks those elements that define a profession such as registration, a self-regulating governing body, the use of universally recognised peer-reviewed evidence based standards of practices and, finally, a mandatory continuous professional development (CPD) program for all practitioners.

Although health professionals must hold a formal qualification and be registered with their national health boards to be able to work as a health delegate, this, however, does not mean they have the knowledge, skills, and or competencies to work in a humanitarian environment. The Australian Health Practitioner Regulation Agency (AHPRA) states that “under National Law, which governs the operations of the

National Boards and AHPRA, all registered health practitioners must undertake CPD” (Continuing Professional Development, 2015).

Both definitions highlight areas that humanitarian practice do not meet: no formal qualification is required to engage in general humanitarian work, and no recognised body exists to monitor and regulate practice and practitioners. Therefore it is reasonable to view humanitarian aid work as a semi-professional area of practice. Recognising the value of information and knowledge as a process to improve performance through sharing and creating information and knowledge, better use and innovation of knowledge processes, whilst embracing lessons learned and evidence based practice, is crucial to effective humanitarian response (Mahmood, Ngom, Delargy, Tambashe, Jongstra & Oussein, 2010).

As individuals, business and economies apply the benefits of knowledge management processes to increase productivity and create wealth generation, the past decade has seen humanitarian organisations start to incorporate knowledge management processes to further enhance utilisation of resources and improve program outcomes in the face of increasingly large crises. A more codified approach to humanitarianism is being driven through better organisational practices as used in business to improve performance, measure outcomes, improve and implement best practice methodologies (Eriksson, 2009; Ferguson, Huysman & Soekijad, 2010; Gaillard & Mercer, 2013). There is now a recognition and acceptance that appropriate and timely evaluation of humanitarian practice helps create not only a learning and accountability culture within organisations but helps drive changes in practice (Hallam, 2011; OCHA in 2012 and 2013).

In acknowledging the importance that information and knowledge have in directing fields of practice, a Joint Statement by the Council and the Representatives of the Governments of the Member States meeting within the Council, the European Parliament and the European Commission (2008, para.28), stated that the European Union would focus on:

- real-time sharing of information on situation assessments and response intentions for specific crises (at headquarters level and the field)
- exchanges to develop best practice and shared sectoral expertise and

- ensuring that lessons are learnt systematically from response to crisis

It is broadly acknowledged that failure by the humanitarian community to gather appropriate information, correctly understand and analyse the information, understand the operational context and implement applicable interventions continues to contribute to negative outcomes for beneficiaries (Guha-Sapir & Below, 2002; Guha-Sapir, Hargitt & Hoyois, 2004; Darcy et al., 2007; Harvey, Stoddard, Harmer, Taylor, DiDomenico & Brander, 2010; Clermont et al., 2011; Featherstone & Nagra, 2012; Rodon, Serrano & Gimenez, 2012).

Garfield et al., (2011) point out in the *Humanitarian Practice Network*:

- “information on conditions prior to the emergency is often available but seldom sought or integrated into analysis” and that “such background is essential for understanding the context of the current situation and existing coping strategies” (p.6)
- “there is a lack of timely analysis and lack of clarity on how to analyse” (p.5)
- “disaggregated data (age, gender, location) is often lacking (p.5)

Katz, Nguyen, Laerda and Daly in their article, *Voices from the Field* (2012), interviewed 26 humanitarian professionals from eight international organisations currently working in humanitarian crises. Below are two comments from aid workers highlighting the importance of understanding context:

“In order to stay connected you have to spend a lot of time in the field and understand the local context; what is on paper is not always what is really happening” (p.260)

“Humanitarians need to be grounded in a firm understanding of social and political context—i.e. understanding the country and culture you are in—otherwise chances of optimal impact are dramatically reduced. This is how big mistakes happen and how sometimes humanitarianism can begin to feed a war economy” (p.261)

Although accepted that knowledge management has an important role to play in the diverse and complex humanitarian aid system (Guha-Sapir & Below, 2002; Darcy, Anderson & Majid, 2007; Helsloot et al., 2012), it has had various degrees of success (Tschoegel, Below & Guha-Sapir, 2006; Powell, 2006). Auf der Heide (2006) found that lessons learned from previous disasters were not always implemented and that failure to do so reduced response efficiency and operational outcomes. This was again highlighted in the 2011 Somalia famine (Seal & Bailey, 2013). The Joint Evaluation of the International Response (Cosgrove, 2007) to the Indian Ocean tsunami identified those similar recurring themes “of inappropriate aid, lack of consultation with beneficiaries, and competition between agencies as in other large emergencies” such as Rwanda and Kosovo still occurred (p.29). On the other hand, when the Bangladesh Cyclone Preparedness Program took into account previous data sets of proportionally higher female mortality rates and a subsequent contextual analysis of the data, the decision makers were able to design and implement programs targeted at reducing gender mortality discrepancies (Eklund & Tellier, 2012).

Wiig, in his book *People-Focused Knowledge Management* (2004) shows that the difference between a “high-performing organisation and a well-intending, but stumbling organisation” (p.51) is the quality and effectiveness of the decision-making process not just at a higher management level but at the ground level. He further explains that it is “equally or often more important” (p.51) at the lower levels to use intelligent behaviour to influence positive organisational output. The emphasis on the importance and role people play in managing and utilising knowledge for strategic advantage is a key plank of the people-centric approach in knowledge management. It also reinforces the need for people to be able to make decisions based on not only best practice guidelines but be able to have a system of available information to form appropriate action viewed in terms of situation and context (Leonard & Howitt, 2012). The decision-making process can be negatively influenced by the individuals’ past experiences as well as their own cultural traditions (Maccuish, 2011).

The emotional reaction to situations or environments also helps frame the way in which knowledge is used in the decision-making process (Dakir, 2005). Accurate and real-time information is the common requirement in all disasters and complex emergencies. Nonetheless, non-standardisation of reporting formats, data collection

and differences in terminology often create difficulties and time pressures in the extraction and analysis of information. Well-designed explicit knowledge tools provide a way to standardise both the collection and reporting of the information (Bui, Cho, Sankaran & Sovereign, 2000). The retention and re-use of appropriate information contributes to better decision-making processes and does not rely on any one individual (Levy, Loebbecke & Powell 2003).

3.6 Advances in Information Technology

Information, according to Liebowitz, Schieber and Andreadis (2010), has become a commodity that is captured, analysed, retrieved and widely disseminated through the use of technology driven information platforms such as the World Wide Web, social communication platforms and computer networks. The development of social information platforms, the spread of mobile communications and computing technology have globalised the way we interact as individuals, as a society and professionally (Meier, 2012; Ziemk, 2012).

Advancements in technology have greatly facilitated and improved the use and uptake of knowledge management practices. Information can be accessed and shared easily, faster and more cheaply across the globe (Skyme, 2001). The rapid spread and growth of the World Wide Web combined with mobile digital devices has not only seen the rapid development of social networks but also real-time data and information, which is now being collected and analysed by volunteer non-humanitarian organisations thousands of kilometres away from the crisis (Humanitarianism in the Network Age, 2012). Organisations such as Crisis Mappers and MapAction provide data and information for effective early warning for CHE and situational mapping of gaps in emergency response and urgent needs of affected populations.

The Ushahidi Platform, first used in Kenya in 2008 as a means to “track post-electoral violence”, used updates from the local population to plot events on a virtual map in real-time (Humanitarianism in the Network Age, 2012). The project allowed anyone with access to a mobile phone or the Internet to upload information via the small message system (SMS) or the Web and has evolved to incorporate emails and the social networking platform Twitter (Ushahidi, n.d). As well as the original Ushahidi

platform, they have developed The SwiftRiver Platform which is aimed at “making sense of a lot of information in a short amount of time” using communication platforms such as emails, the Internet, RSS feeds and SMS. Another communication application they have developed is the CrowdMap, which allows users to set up the Ushahidi platform on their own system instead of through a dedicated server. CrowdMap also allows the users to post pictures or any other multimedia into situational mapping (Ushahidi, n.d).

Google has created the Google Crisis Response framework to support emergency response and provide information to the public (Google Crisis Response, n.d). Tools such as Google Public Alerts allow appropriate organisations to deliver necessary information or emergency alerts. Google Person Finder provides an open platform for people or organisations to search for people lost or separated after disasters. Google Maps can be customised by emergency organisations to include a variety of information and multimedia formats, as well as editing capabilities. Google Earth is a geographical information platform that provides detailed satellite imagery and mapping, can be customised to incorporate live information feeds and multimedia formats, and is able to be edited and easily shared. Google also provide standardised information sharing platforms such as Fusion Tables, documents and spread sheets.

Mobile phone technology has changed the way information is able to be shared in real-time. SMS has provided means for affected populations to provide information on the disaster, any emerging or immediate needs or even their location as well as being able to receive warnings such as tsunami or cyclone alerts (Information and Communication Technology Usage in the 2010 Pakistan Floods, n.d; Humanitarianism in the Network Age, 2012). The social networking site Twitter which describes itself as an “information network” along with other social networking sites such as Facebook and Flickr have been described as the “new nervous system for our planet” because of their ability to create a network of human sensors (Meier, 2012, p.89).

Accurate and timely information is the common imperative and need in all disasters and complex emergencies. Even so, non-standardisation of reporting formats and data collection and differences in terminology often creates difficulties and time pressures in the extraction and analysis of information (The Assessment Capacities Project,

2015). A key finding in the case study of the Pakistan floods in 2010 was that a lack of standardised data methodology and poor information management contributed to poor situation awareness (Information and Communication Technology Usage in the 2010 Pakistan Floods, n.d.). Well-designed explicit knowledge tools provide a way to standardise both the collection and reporting of the information (Bui, Cho, Sankaran & Sovereign 2000). The retention and reuse of appropriate information contributes to better decision-making processes and does not rely on any one individual (Levy, Loebbecke & Powell 2003).

The use of these technology driven platforms has enabled better capture, storage and retrieval of large repositories of information. Furthermore it has facilitated the conversion of tacit and explicit knowledge models through the subsequent sharing of information in emails, conference calls, video chat rooms and other digitally connected interaction platforms (Liebowitz et al., 2010). Contemporary information flow and communication technologies have made where one lives and works in a geographical sense, and the space between communicators and communication platforms, a problem of the past.

As connectivity increases, however, so does potential interaction with different individuals or groups from similar or vastly different social or cultural backgrounds with potentially diverse sets of values and or beliefs. Tacit knowledge influences our actions through our learned values, beliefs, cultural understandings and experiences. It is recognised that culture plays an important part in action and interaction as well as decision-making processes (Maccuish, 2011; Leonard & Howitt, 2012). It is this link between tacit knowledge, social and cultural understanding and interactions that make tacit knowledge more important than explicit knowledge (Wang & Schulte, 1995; Nonaka & Takeuchi, 1995).

Nonaka and Takeuchi (1995, p.9), in their frequently cited book *The Knowledge Creating Company*, argue that the conversion of tacit to explicit knowledge is where knowledge creation occurs. Individuals as part of a digitally connected community are able to influence business and government processes and actions (Lewis & Kanji, 2009, p.144-148). The development of the World Wide Web in the early 1990s created the platform for persons, groups, and businesses to connect and interact irrespective of

time zones and location thereby creating new social structures (Wallace, 2007). Individual, business or government websites, online discussion and collaboration forums, e-mails and digital mailing lists, accessing a variety of services through Web portals, and Web search engines are all at easy reach to navigate, access and share information (Groff & Jones, 2003, p.25-30). The benefits of improved access to information, better-quality storage technology and retrieval of stored information to a wide range of portable technology devices has delivered a platform that has substantial benefit to knowledge-based organisations (Davenport & Prusak, 1998).

3.7 Development of Information Networks, Educational Resources and Standardised Tools in Humanitarian Action

The development, uptake, and improvements in information technologies have provided professionals with unparalleled access to a wide variety of areas of practice. Humanitarian information portals such as the Active Learning Network for Accountability and Performance in Humanitarian Action (ALNAP), the Inter-Agency Standing Committee (IASC), and Humanitarian Response websites now provide humanitarian aid workers access to a plethora of tools and information to help guide assessment, response and technical standards. Table 6 outlines a sample range of available resources.

Table 6: Available Resources

Humanitarian Response Technical Guidelines	IASC – Guidelines	ALNAP
Camp Coordination/Management	Mental Health and Psychosocial Support in Emergency Settings	Lessons Learned Papers Studies in Humanitarian Action
Emergency Telecommunications		
Nutrition in Emergencies	Gender Handbook for Humanitarian Action	Guides for Evaluating Humanitarian Action using the OECD-DAC Criteria
Early Recovery		
Food Security	IASC Operational Guidelines on Human Rights and Natural Disasters	Real-time Evaluations of Humanitarian Action
Protection		
Education & Health	Guidelines on Gender-Based Violence	Working Papers and Case Studies
WASH	Interventions	Evaluation Reports
Emergency Shelter and NFI		
Logistics		

Sources: www.interagencystandingcommittee.org, www.alnap.org, www.humanitarianresponse.info

The Disaster Management Information System website of the IFRC contains guidelines on logistics, IT/telecom, health, water and sanitation, relief, cash-based programs, emergency food security and livelihoods, recovery, shelter, and evaluation and monitoring. The DMIS site also provides maps, operational updates, field reports and disaster preparedness guidelines and policies. Other websites such as Reliefweb (<http://reliefweb.int/>) provide 24 hourly updates on ongoing disasters as well as updates on previous emergencies. Humanitarian organisations such the ICRC, IFRC, MSF, and Oxfam UK provide a large range of easily downloaded reference guides in MS Word⁴ and PDF⁵ formats on health, water and sanitation, nutrition, livelihoods, program evaluations, assessment guides, HIV/AIDS and assorted technical briefing notes. Table 7 outlines a sample of available reference guides.

Table 7: Sample Reference Guides

ICRC	IFRC	MSF	OXFAM
War Surgery Volumes 1 & 2	Public awareness and public education for disaster risk reduction	Essential Drugs 2013	Cholera outbreak guidelines
First Aid in Armed Conflict	Gender sensitive approaches to disaster management	Refugee Health	Guidelines for Public Health promotion in Emergencies
The Basics of International Humanitarian Law	Reducing the risk of food and nutrition insecurity among vulnerable populations	Rapid Health Assessment of Refugee or displaced populations	Malaria control manual
Management of dead bodies		Tuberculosis	Water distribution manual
Nutrition Manual		Clinical Guidelines	Community-based approach to food distribution
Water and War	Implementation guide for community-based health and first aid in action	Obstetric in Remote Settings	Water storage manual
		Public Health Engineering	

Sources: ICRC Publications and Film, ICRC, n.d.; General Publications, IFRC, n.d; MSF Reference Books, n.d; Policy and Practice, OXFAM, n.d.

A multitude of international and non-governmental humanitarian organisations have developed and made available on their respective websites explicit knowledge-based

⁴ This is a Registered Trademark

⁵ This is a Registered Trademark

tools and other available resources that are adaptable to a variety of key disaster and complex emergency environments (see, for example, the websites of the ICRC, IFRC, MSF, Oxfam, PAHO and WHO). The Assessment Capacities Project—a collaboration of three NGOs: HelpAge International, Merlin and Norwegian Refugee Council—developed multiple tools and guidelines for use in complex emergencies and disasters to improve and provide a common framework for assessments. Those guidelines cover situations such as armed conflict, earthquakes, floods, and tropical cyclones (ACAPS, 2016). The WHO Collaborating Centre for Research on the Epidemiology of Disasters (CRED) for the past 30 years has continued to provide research and training opportunities around violent conflict and natural disasters (Centre for Research on the Epidemiology of Disasters, n.d.). Whilst there is a growing list of available field and knowledge-based resources there is no binding or regulatory requirement for these or any other resources to be used.

Development in education and training resources for humanitarian disasters, complex emergencies, and relief activities has increased and become widely accessible. Both the IFRC and ICRC run specialised courses relative to their specific mandates. United Nations organisations such as the World Health Organisation and the Office for the Coordination of Humanitarian Affairs have similar courses whilst there is a plethora of training courses and information available through the UN Department of Humanitarian Affairs developed website Reliefweb (Bui et al. 2000).

Nevertheless, with large amounts of information resources available, the lack of consistency in their use and application has become a source of constant examination. OCHA (2009) in response to requests from the humanitarian community for a more coherent and standardised approach to emergency assessments and analysis, improvements in the collection and sharing of information, standardised definitions and terminology templates, as well as indicators to measure effectiveness of intervention or need for action, has called for a more streamlined approach and a “coherence among the multiple tools and practices that exist to assess needs within the humanitarian community” (p.4).

In 1997 the Sphere Project (The Sphere Project, 2011), a collaboration of non-government and humanitarian organisations, began to develop a set of internationally

recognised minimum technical standards in humanitarian response based on best practices across key sectors such as: water supply, sanitation and hygiene promotion; food security and nutrition; shelter, and health action. The purpose of this initiative was twofold. First, in times of disasters, to provide to the affected population a minimum requirement of aid resources to ensure survival with a level of dignity. Second, to provide a level of “quality and accountability” to the affected population (p.5). As the Sphere Project (2011) states “The Sphere Handbook is a voluntary code and a self-regulatory tool for quality and accountability, and the Sphere Project does not operate any compliance mechanism” (p.8).

Although the Sphere Handbook contains technical information and ideal minimum standards which are beneficial in a mixture of settings, it is heavily criticised for not taking into consideration the many differences in cultural, political and security contexts (Dufour, Geoffrey, Maury & Grunewald, 2004). To this end, following the Sphere standards across the board has the potential to impact negatively with aid workers unable to implement a more flexible approach based on local contexts (Griekspoor & Collins 2001). It is the aid workers’ ability to use both tacit and appropriate explicit information to meet the different characteristics that both disasters and complex emergencies generate, as well as their cultural and geographical setting that will have the most benefit (Dufour et al., 2004). The Humanitarian Response Review (Adinolfi et al, 2005) highlighted food aid, nutrition and livelihood interventions across the relief spectrum as suffering in their delivery because of poor implementation.

During disasters and complex emergencies the speed, accuracy and reliability of assessment data is paramount to the efficiency and appropriateness of the response. Standardisation of both emergency needs and epidemiological assessment data and surveillance has been suggested as a way of improving effectiveness of interventions (Bradt & Drummond, 2003). The State of the Humanitarian System Report (Harvey et al., 2010) identified that “humanitarian actors felt that needs assessment remained a weakness in the system” (p.10). Assessment data in disaster and emergency settings is at times limited by information distortion due to either the experience of the aid worker or lack of knowledge or access to technical standards.

Other criticisms highlighted inadequacies of appropriate data collection methods, inadequate and or unreliable data, failure of a common set of definitions and terminology, operational biases, and slow decision making and operation response mechanisms (Darcy, Stobaugh, Walker, Maxwell, 2013). This is not new. Bui et al., (2000) highlighted the use of explicit standardised needs assessment methodology, commonly used terms and definitions as ways that would help to reduce the information distortion effect. Despite this, the State of the Humanitarian System Study (ALNAP, 2015) found there was still no forward progress in engaging the local population during needs assessments, there continued to be no consensus in the use of assessment methodologies, and that there was “little evidence of affected populations’ input to project design or approach” (p.12).

Humanitarian organisations using a common needs assessment collection approach in the form of explicit knowledge templates allows both the experienced practitioner to use a flexible approach, whilst also providing the less inexperienced aid worker, a guide and checklist to obtain relevant information specific to the type of disaster. This information is then used to develop appropriate emergency response and relief. Unfortunately barriers to effective emergency aid are sometimes compounded by aid workers lack of skill and experience (Banatvala & Zwi, 2000). Changing contexts require aid workers to utilise *explicit knowledge* bases that meet universally accepted benchmarks. Access to up-to-date peer-reviewed evidence based research, program evaluations and operational changes in the humanitarian paradigm provide the flexibility required by aid workers (Burkle, 2008). Recommendations from program evaluations are necessary to adjust programming to meet contextual differences as well best-practice standards where situations and circumstances allow, such as outlined in the Sphere handbook (Gardemann, 2002). These lessons learned are valuable tools to complement and build into an explicit knowledge-based system.

Appropriate access and use of such data can strengthen and improve coordination frameworks (Kaklauskas et al., 2009). Identifying and building core explicit knowledge-based systems that aid workers have access to is necessary in improving the decision-making process (Gardemann, 2002). Humanitarian response to both disasters and complex emergencies must be based on best practice evidence to

maximise both available physical and financial resources whilst providing effective timely interventions (Banatvala & Zwi, 2000).

Aid workers in today's humanitarian environment are expected to have some multi-sectoral knowledge coupled with an extensive selection of skills and competence in their own area of expertise (Toole & Waldam, 1997; Hearn & Deeny, 2007). They are frequently required to work outside of their identified role, experience and skill set (Salama 1999). Overlack (2005, p.21) found that of 30 Red Cross health delegates surveyed, 73% stated they had faced situations whereby they did not have appropriate reference material to make informed decisions. The Humanitarian Response Review (Adinolfi et al., 2005) carried out by OCHA in response to the Indian Ocean tsunami of 2004, identified training of staff within "humanitarian organisations was in general, limited in scope and number of dedicated hours" (p.9). From this it was recommended that the Inter-Agency Standing Committee develop guidelines in staff training as well as standards and technical benchmarks at field level.

Aid workers are not expected to memorise all the standards and technical information required in their day-to-day practice. Even so, in order to meet the challenges required in such diverse and complex situations aid workers need to be able to easily access and refer to a range of appropriate reference materials. Content of such a tool could incorporate best practice standards, technical benchmarks as well as peer-reviewed case studies (Janz & Sleat, 2000; Lee, 2008). Contextual differences in all disasters or post-disaster settings means there is no one single magic bullet strategy employable. Humanitarian aid work is not only complex but needs to evolve to meet these new challenges. It is the combination of explicit and tacit knowledge systems that will allow the health delegate the flexibility to adapt to the complexity of humanitarian environments (Kaklauskas et al., 2009).

Previous research has highlighted the fact that any explicit information or reference material taken to the field by Australian Red Cross aid workers has been their own and that they rely on explicit reference material being available within the delegation or sub-delegation of the country they are working in, which is not always possible (Overlack, 2005, p.21-22). The reality for many health aid workers within the Red Cross movement is that a significant period may elapse between missions or that each

mission is in a different operational context. As part of health professionals' ongoing commitment to both their profession and license requirements, there is a process by which continual updating of practice methods and theoretical knowledge pertinent to their area of practice is required. Whilst such information is easily accessed in developed countries from a variety of sources, the availability of these resources in the operating environment of health aid workers is somewhat limited. Having available comprehensive and appropriate explicit reference material allows the health aid worker to make informed decisions based on current peer-reviewed literature, implement programs based on best practice guidelines and provide reference support for situations they have not faced.

3.8 Using the OODA Loop and Portable Reference Tool

This chapter has identified a mixture of limitations and developments in humanitarian practices. It has also proposed a number of solutions to address the ongoing weaknesses within the humanitarian sector. The adoption of Boyd's OODA decision-making framework and the use of an easily accessible and Portable Reference Tool by health delegates can improve humanitarian outcomes. The Portable Reference Tool can be used by health delegates to access a wide range of clinical guidelines and health related reference resources that can better support decision-making processes in a clinical setting. Boyd's OODA Loop can be used as a stand alone decision-making tool in the assessment, design, and implementation of humanitarian programs. Used together, Boyd's modified decision-making model and the Portable Reference Tool complement each other by strengthening the collection of information, improving decision-making processes, and providing the necessary peer-reviewed standards of practice and clinical guidelines to augment appropriate health interventions.

The observation stage of Boyd's OODA Loop, as Von Lubitz et al., (2008) point out is where actionable knowledge is generated. It is also pointed out that the observation stage (as part of the continuous cycle of the OODA Loop) provides the internal validity and reliability of the data in program development (Patricelli et al., 2009; Ezard & Lewis, 2012). It is at this first stage the Portable Reference Tool provides the health delegates with the appropriate tools to collect the necessary data. Additionally at each stage of the OODA Loop the access and use of appropriate peer-reviewed reference

material and standards of practice in the development, implementation, and analysis of program interventions is essential in delivering a high standard of practice.

One of the identified weaknesses in humanitarian action has been the lack of consultation with the local population at all stages of humanitarian action. Adopting the modified OODA Loop engages the local population at each stage of the OODA cycle and strengthens contextual reliability and accuracy of information collection. Analysis of information is able to be understood within the context of the situation and the local culture. Program development and or analysis of ongoing programs is able to be better understood in their success or failure within the parameters of local culture, its strengths or weaknesses. Programs can then be adjusted to provide an improved level of support. Efficiency of program development and implementation is improved by understanding local realities. Time is not wasted by poorly conceived programming that does not understand the local context. The affected population feels they are able to better engage with humanitarian organisations and that their needs are being understood and met.

3.9 Summary

This chapter has reviewed the basic understanding of knowledge and explored knowledge management processes associated with improved outcomes for business and the implications for humanitarian action. Inadequacies by humanitarian organisations to understand, collect and use available and relevant information in the decision-making process was identified as a factor in less than ideal outcomes for affected populations. A decision-making model utilising professional decision support systems through improved access to appropriate knowledge management practices and available technology, was identified as a mechanism to address these long-term issues. The next chapter describes the rationale, aims and objectives of this research as well as the study design and the methods used to collect the data.

Chapter 4: Research Design and Methodology

4.0 Introduction

This chapter describes the study design and research methodology. The chapter starts by firstly outlining the rationale driving the research purpose and its primary focus, followed by the research aims and objectives. The research design and settings are then discussed followed by the five stages of the research process: (1) Indepth global literature review and analysis, (2) Questionnaire, (3) Key Informant interviews, (4) Analysis of Questionnaire and Key Informant Interviews, (5) Development of the Portable Reference Tool and evaluation. This is followed by an outline of the ethics of this research.

4.1 Research Aim and Research Questions

The aim of this study was to improve the ability of humanitarian health aid workers to function in complex emergency and humanitarian environments by providing easy access to appropriate knowledge-based resources necessary to make informed decisions.

The study sought to address the aim of the study through three research questions:

1. What is the attitude and culture of international humanitarian organisation headquarter staff towards the professional management of health delegates?
2. Do health delegates have access to appropriate peer-reviewed explicit knowledge-based resources in the field environment?
3. What type of resources are needed by staff to perform to the best of their ability?

The study had the following specific objectives:

1. To understand and identify the types and sources of tacit and explicit knowledge tools health delegates use in their decision-making processes.
2. To explore the capacity and attitude of the headquarter groups and health delegates towards issues such as ongoing professional development and the maintenance of current practice competencies.

3. To examine what standard explicit knowledge-based resources are provided by the various Red Cross movement headquarter staff
4. To investigate what references and resources health delegates access and use in the humanitarian environment
5. To identify the types and sources of explicit knowledge-based reference resources health delegates would like to access

4.2 Study Design and Research Paradigm

An exploratory mixed methods approach utilising a pragmatic paradigm was used in this research. It is increasingly being recognised in the health sciences that combining qualitative and quantitative methods in research is able to capture the respective strengths of both approaches (Ostlund, Kidd, Wengstrom & Rowa-Dewar, 2011). The use of mixed methods is relatively new. Termed the ‘paradigm wars’, researchers debated the strengths and weaknesses of qualitative versus quantitative research and questioned whether qualitative and quantitative data could be combined (Feilzer, 2010; Evans, Coon & Ume, 2011). Today, mixed methods research is recognised as the third major research paradigm alongside qualitative and quantitative research (Johnson, Onwuegbuzie & Turner, 2007).

Mixed methods research combines both qualitative and quantitative methods and involves philosophical assumptions by the researcher in how these methods are used within a study (Creswell, 2009). Creswell (2015) further explains that using mixed methods involves the collection of both qualitative and quantitative data. As such mixed methods primary viewpoint is one of pragmatism (Johnson et al., 2007). Pragmatism as identified by Creswell (2009) “opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis” (p.11). Table 8 outlines the philosophical assumptions of the pragmatic paradigm.

Table 8: Philosophical Assumptions of the Pragmatic Paradigm

Assumptions	Beliefs
Axiology	Gain knowledge in pursuit of desired ends and societal improvements as influenced by the evaluator's values and politics and experiences.
Ontology	Reality is continually created through experience in interaction and transaction with the "world".
Epistemology	Ideas and knowledge are evaluated according to their consequences; the gold standard evaluators can meet is warranted assertability and provisional truths about situated evaluands.
Methodology	Match methods to questions; mixed methods

Source: Adapted from Mertens and Wilson, 2013, Mertens and Tarsilla, 2015.

It is recognised that a researcher's philosophical belief system or paradigm influences the selection of methodology and methods as well as ways in which the research is able to be validated (Scotland, 2012). Rolfe (1996) defines a paradigm as "a shared set of rules and beliefs about how a discipline functions, including what counts as knowledge, how it can be generated and how and by whom it can be generated" (p.232). There is a variety of paradigms, depending on the philosophical standpoint of the researcher, that can be used to justify the way in which a study can be designed, implemented, analysed, justified and reported (Muncey, 2009). Utilising a mixed method approach over a singular method however does not intrinsically provide for a stronger study design (Tashakkori & Teddlie, 2003). Whatever paradigmatic position the researcher adheres to is based on "their understanding of the nature of knowledge (their epistemological standpoint) and of reality (their ontological standpoint)" (Broom & Willis, 2007, p.17).

The focus of this research was how to best answer the research question. As such, the use of a pragmatic paradigm was felt the most appropriate approach for this research as it would provide a deeper understanding and more complete picture of the problem being researched (Johnson et al., 2007). The use of a pragmatic paradigm looks at problem solving through real-world interventions and interactions in multiple contexts (Martin & Felix-Bortolotti, 2014). Feilzer (2010) argues that whilst a pragmatic paradigm avoids the deeper ideological issues of 'truth and reality' as in other research

methods, its focus is more on the issues of problem solving. Tashakkori and Teddlie (2010) suggest that using a mixed methods approach mirrors everyday problem solving strategies, whereby using a singular approach of qualitative or quantitative methods does not. They use the term ‘humanistic conceptualisation’ of the research process to suggest the distinction between researchers and problem solvers is changing. They reinforce Feilzer’s (2010) argument that any incompatibility issues using mixed methods is irrelevant. However irrespective of which method or paradigm is used, it is paramount that the research is carried out with rigor and can be validated (Johnson et al., 2007; Giddins & Grant, 2009).

4.3 Participant Recruitment

All participants for this study were currently employed by a Red Cross organisation or had previously worked as a health delegate on an overseas mission with the Red Cross. There were 86 participants in total representing three survey groups; headquarter staff, general health delegates, and experienced health delegates. Additionally, two experienced health delegates not currently on mission were asked to evaluate the developed Portable Reference Tool.

The selection of the national societies was initially based on the researchers’ work history and contacts with these organisations. They were chosen because they had a significant number of health delegates who either were able to be seconded to the International Committee of the Red Cross (ICRC) or the International Federation of the Red Cross and Red Crescent Societies (IFRC) or who were part of their own national society health or emergency response programs. The ICRC and the IFRC were selected because they represent the international arm of the Red Cross movement and have significant ongoing worldwide emergency and relief programs. They employ health delegates from many Red Cross national societies and provide a significant variety of health roles across a wide spectrum of operational responsibilities.

As the research focus was on respondents with a specialised skill set (humanitarian health workers), it was necessary to use a purposeful sampling technique to target key informants and respondents to maximise appropriate data collection (Liamputtong & Ezzy, 2005; Oliver, 2010; Suri, 2011). The use of a purposeful sampling strategy

utilising key informant interviews and an emailed linked questionnaire to health delegates, provided the appropriate respondents for this research with a varied level of operational experiences, roles and professional experience in which to compare and contrast responses across the three survey groups (Teddlie & Yu, 2007). This enhanced triangulation of data added a deeper understanding of the issues challenging health aid workers in complex emergencies and humanitarian environments (Denzin & Lincoln, 2008; Creswell, 2009; Halcomb & Andrew, 2011).

Two experienced health delegates were recruited to evaluate the development of the PRT for functionality (portability, ease of navigation, accessibility), suitability (types of reference resources, Websites), and usefulness (could the PRT be used in decision-making processes?). The evaluation of the PRT was conducted in Brisbane, Australia. It was not feasible to conduct the evaluation of the PRT in a combination of field environments such as natural disasters and complex humanitarian emergencies. The purpose of this evaluation was twofold. First, to provide necessary feedback to modify and strengthen the PRT. Second, once the tool has been modified the PRT would be ready for a larger sample of evaluators in field trials across multiple humanitarian environments in future research. Both evaluators were originally interviewed as part of the data gathering process with experienced health delegates. These health delegates were recruited through the informal Red Cross delegate network.

4.4 Stages of Research

This study was conducted over five stages:

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- | | |
|----------------|---|
| Stage 1 | Indepth global literature review and analysis |
| Stage 2 | Questionnaire administration |
| Stage 3 | Key informant interviews |
| Stage 4 | Analysis of questionnaire and key informant interviews |
| Stage 5 | Development of the Portable Reference Tool and evaluation |
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4.4.1 Stage 1: Literature Review and Analysis

Conducting and analysing the general literature review was undertaken using a structured methodological approach. Although not a systematic literature review, the framework for conducting a systematic literature review was used as it provided a

thorough process by which available research was assessed, summarised, and interpreted around the research question. This methodology was adapted to include not only studies but also relevant literature. This was done as there was a paucity of research on humanitarian health workers' ability to make appropriate decisions at a field level, in both complex humanitarian environments and natural disasters. Table 9 outlines the five steps undertaken in the general literature review.

Table 9: Steps in Conducting General Literature Review

Step 1. Framing the question	Set clear, structured and unambiguous questions.
Step 2. Identifying relevant work	The search for studies and relevant literature should be extensive, including computerised and printed material. The study selection criteria should flow directly from the research question.
Step 3. Assessing the quality of studies	Studies and relevant literature quality is relevant to every step of a review. Selected studies should be subjected to a more refined quality assessment by use of general critical appraisal guides and design-based checklists. These detailed quality assessments will be used for exploring heterogeneity and informing decisions regarding suitability for meta-analysis.
Step 4. Summarising the evidence	Data synthesis consists of tabulation of study characteristics, quality and effects as well as use of statistical methods for exploring differences between and combining their effects (meta-analysis). Exploration of heterogeneity and its sources should be planned in advance (step 3). If a meta-analysis cannot be done, subgroup meta-analysis may be feasible.
Step 5. Interpreting the findings	Issues in each of the four steps above should be met. The risk of publication bias and related biases should be explored. Exploration for heterogeneity should help determine whether the overall summary can be trusted, and if not, the effects observed in high-quality studies should be used for generating inferences. Any recommendations should be graded by reference to the strengths and weaknesses of the evidence

Adapted from Khan, Kunz, Kleijnen & Antes, (2003, p. 118)

Step 1:

Initial research questions focussed around broad topics related to knowledge management, accountability issues in humanitarian practice, health programming in

complex humanitarian and natural disaster emergencies. This provided a structured starting point to explore the literature and presented new avenues in which to search.

Step 2:

An indepth global literature review of peer-reviewed documents, case studies, research articles and grey articles was undertaken. The literature search focused on knowledge management, accountability issues in humanitarian practice and health programming in complex humanitarian and natural disaster emergencies. The scope widened to include general and health related humanitarian issues, the evolution of humanitarian law and practice, knowledge management practices, decision-making processes and the Red Cross movement. The literature search was further refined around humanitarian health interventions. A wide selection of specific humanitarian websites and databases were accessed to provide a detailed list of research data. These included:

- ALNAP (<http://www.alnap.org/>)
- the WHO Collaborating Centre for Research on the Epidemiology of Disasters CRED (<http://www.cred.be/>)
- EM-DAT (Emergency Events Database, <http://www.cred.be/>)
- CE-DAT (Complex Emergency Database, <http://www.cedat.be/>)
- Global Humanitarian Assistance (<http://www.globalhumanitarianassistance.org/>)
- Reliefweb (<http://reliefweb.int/>),
- Evidence Aid (<http://www.evidenceaid.org/resources/>)
- Humanitarian Practice Network (<http://www.odihpn.org/>).

Large international and non-government organisations websites and databases were also accessed such as WHO, OCHA, UNHCR, WFP, the ICRC, IFRC, MSF and OXFAM for published papers, lessons learned documents, program evaluations, position papers, humanitarian reviews, standards of international humanitarian law and other relevant documentation. Other search engines such as Google Scholar were used.

Step 3:

Studies and literature were reviewed and selected with relevance and appropriateness to the research question. Abstracts were read to ascertain suitability in contributing to

the research question. Articles selected were read in their entirety. All articles were viewed critically. Study author or authors needed to show a structured, clear and logical methodological framework for their research. The research findings, discussion, implications, and significance of the study needed to be applicable in building a deeper understanding around the present research question.

Step 4:

Summarising the evidence was done at each step of the research process. Articles were read and then summarised. This summary was then attached to each document. Digital articles were placed in folders identified for key concepts. Where applicable, points of interest in digital articles were highlighted for ease of future access.

Step 5:

It was important in the literature review process that all relevant articles were included. This was important as the researcher was aware any biases would diminish the validity of the background to this research and the applicability or generalisation of its significance. Polit and Beck (2010) acknowledge the importance that the process of generalisation plays in applied health research. They state that “generalisations are critical to the interest of applying the findings to people, situations, and times other than those in study” (pp.1451-1452). The literature review is presented in chapters 2 and 3.

4.4.2 Stage 2: Questionnaire

A pretest questionnaire was sent via email by the Australian Red Cross (ARC) to all health delegates on their active database. Seven health delegates completed and returned the pilot questionnaire with a number of minor suggestions to improve the data collection methodology and fluency of the questionnaire. The questionnaire was then amended to reflect these suggestions. The questionnaire was developed through Survey Monkey and provided as a link via email with a request to participate in the research.

The national societies of the Australian, British (BRC), and Canadian Red Cross (CRC), as well as the ICRC and IFRC were formally asked for their participation in this research project. Once agreed, a link to the questionnaire was emailed out through

the ARC, BRC, CRC and the ICRC, asking health delegates to formally participate in this research project. It was not initially planned for the questionnaire to be sent out by the ICRC, but due to being unable to conduct interviews in several country locations because of ongoing security issues, the ICRC offered to send the open invitation to participate in this research to all their health delegates currently on mission. This open invitation along with the questionnaire was sent to country delegations to distribute. This open invitation to participate in this research did not require statistical analysis.

Respondents were selected using purposive sampling. This sampling method was used to provide data from a select sub-group of humanitarian practitioners relevant to this research enquiry (Liamputtong & Ezzy, 2005). Fifty nine health delegates responded to the open invitation to participate by completing the questionnaire.

The questionnaire was comprised of 26 open and closed questions (see Appendix 4). All questionnaires were in English although not all respondents' first language was English. English was chosen as it is a primary working language of the Red Cross movement. Information was sought in four categories: educational qualifications and humanitarian-based experience; attitudes towards humanitarian engagement and ongoing professional responsibilities as health workers; knowledge management practices in their professional capacity as a humanitarian health worker; and the peer-reviewed reference resources humanitarian health workers would find beneficial in the field. As Oliver (2010, p.110) points out the use of a structured survey questionnaire sent via e-mail allows for a wide geographical representation of the targeted data group.

Closed questions were utilised to develop demographic, educational and professional profiles of respondents and facilitate ease of data collection and analysis. The open-ended questions asked respondents to describe and categorise types and sources of tacit and explicit knowledge tools they accessed and used. The questionnaire further explored the attitude and culture of health delegates regarding ongoing professional development requirements and peer-reviewed knowledge-based resources. Finally, open-ended questions were used to identify the mechanisms of decision-making processes employed by health delegates and the types of explicit knowledge resources health delegates would find beneficial in their practice. The returned comments from

the questionnaires were read to identify key themes as well as any new emerging ideas or themes. New and emerging themes were used to guide the interview process with both the headquarter staff and experienced health delegates. A thematic framework was used to identify key themes by which the data was examined and referenced (Pope & Mays, 2006).

Four categories were identified in which to code analysed data. Distilled themes were further identified to better reflect accuracy of response data and to capture issues and attitudes towards current access of appropriate reference material, the process of decision making in the field, and the knowledge management needs of health delegates. All emerging and identified themes were discussed with my supervisor for relevance and consistency.

As identified in the literature review, humanitarian engagement is often split between health professionals working in their own area of expertise within their own countries' health care system and undertaking humanitarian missions. To help build a profile of humanitarian health workers it was important to differentiate between qualifications related to their professional roles at home and that in a humanitarian related field.

The four categories identified from the questionnaire were:

1. Demographic profiles
2. Attitudes towards humanitarian engagement and practice competencies
3. Accessing peer-reviewed reference material and the decision-making process
4. Types of reference material required in a Portable Reference Tool

The first eight questions collected demographic data such as age, primary and postgraduate qualifications, humanitarian working history including humanitarian organisations worked for, number of missions completed, types of operational roles, and if their roles had changed whilst on mission. Postgraduate qualifications were further explored to differentiate between general health and specific humanitarian related qualifications.

The second category, attitudes towards humanitarian engagement and practice competencies, was drawn from seven questions. The first three questions looked at

how health delegates engaged in humanitarian work. The questions explored whether humanitarian work was seen as a primary or secondary source of professional employment, and if health delegates saw their engagement with humanitarian work as a long-term—albeit sporadic—or part-time professional opportunity alternating with their primary source of employment. The final four questions in this theme explored health delegates ability to maintain their professional knowledge base around issues and changes in the humanitarian environment and the mechanisms they use to achieve this.

The third category, accessing peer-reviewed reference material and the decision-making process, was explored using five questions. These questions looked at how health delegates access and use appropriate reference resources whilst on mission. The questions also explored types and sources of reference resources available in the field, their access and use, as well as what process health delegates rely on to make appropriate decisions.

The fourth category, types of reference material required in a Portable Reference Tool, were explored in the remaining six questions. These questions asked the respondents what type of professional reference resources, operational templates, and educational material they would find beneficial to have available in a portable and easily accessible digital format. The use and availability of other types of digital material was also explored for non-work related relaxation needs.

As general health delegate questionnaires were completed the comments were read to identify the key themes as well as any new emerging ideas or themes. New and emerging themes were used to guide the interview process with both the headquarter staff and experienced health delegates. A thematic framework was used to identify key themes by which the data was examined and referenced (Pope & Mays, 2006).

All data from returned questionnaires was imported into NVivo 10⁶ and Microsoft Excel⁷ spreadsheets as a separate source. The four main categories identified were used to code analysed data. Simple descriptive statistics and frequencies were drawn

⁶ This is a Registered Trademark

⁷ This is a Registered Trademark

from the demographic data. Distilled themes were further identified to better reflect accuracy of response data and to capture issues and attitudes towards current access to appropriate reference material, the process of decision making in the field, and the knowledge management needs of health delegates.

4.4.3 Stage 3: Key Informant Interviews

Key-informant interviews were conducted with two purposely selected respondent groups, (a) experienced health delegates and (b) headquarter staff. All key informant interviews were carried out in privacy with only the interviewer and respondent present. All interviews were recorded for transcription and analysis.

Experienced Health Delegates

In total, six experienced health delegates whose selection criteria was having completed a minimum of six humanitarian missions were identified by the Australian and Canadian Red Cross, and the ICRC. This open request was sent out with the survey questionnaire. At the time of data collection the six experienced health delegates were the only health delegates available to be interviewed. Both the British Red Cross and the IFRC were unable to provide experienced health delegates. These experienced health delegates were asked if they would participate in this research. Face-to face interviews were carried out in Nambour and Brisbane (Australia), Toronto, (Canada), and Geneva, (Switzerland).

The same questionnaire, provided as an emailed link to health delegates comprising of 26 open and closed questions (see Appendix 4), was used as a semi-structured interview guide for the experienced health delegates. This was done to maintain a standardisation and continuity of data collection from all health delegates while allowing further exploration of emerging themes and comments based on their extended level of experience.

Similar categories identified from the questionnaire were:

1. Demographic profiles
2. Attitudes towards humanitarian engagement and practice competencies
3. Accessing peer-reviewed reference material and the decision-making process
4. Types of reference material required in a Portable Reference Tool

Key informant interviews allowed the respondents to expand their answers as well as identifying any new themes the researcher had not foreseen (Axinn & Pearce, 2006). This approach explored the operational context in which health delegates received their briefings and reference resources before arrival in their country of assignment. It was aimed at examining health aid workers perceptions, experiences, operational realities and their resource needs and requirements during their humanitarian engagement.

Headquarter Staff

Headquarter staff were selected to provide a contrasting operational perspective. Their primary role is non-field-based, to oversee health delegate personnel and programming at the organisational level. In total 21 headquarter staff respondents were recruited from the Australian (7), British (2), and Canadian Red Cross (4) national societies, the International Committee of the Red Cross (7), and the International Federation of Red Cross and Red Crescent Societies (1). All headquarter staff managing health related programming were invited to participate in this study. Due to operational requirements some headquarter staff were either in the field or unavailable for interview. Face-to-face interviews were conducted in Melbourne (Australia) with the ARC, London (England) with the BRC, Toronto (Canada) with the CRC, and Geneva (Switzerland) with the ICRC and IFRC.

A semi-structured interview guide was used to explore overall themes and topics and provide a standardised data collection guide (see Appendix 5). Headquarter staff were asked a series of 18 open and closed questions. The questions were aimed at finding out the professional humanitarian demographics of the respondents, and the attitudes and culture surrounding knowledge management practices of headquarter staff and health delegates. This was done to provide a different perspective around the use of knowledge management practices impacting health delegate respondents. The four similar categories listed above were again used to present results.

The first eight questions collected demographic data such as age, primary and postgraduate qualifications and humanitarian working history, including humanitarian organisations worked for, number of missions completed, and types of operational

roles. Postgraduate qualifications were further explored to differentiate between general health and specific humanitarian related qualifications. The exploration of professional demographics provided a baseline in which operational awareness and understanding of both organisational practices and health delegates' needs could be viewed.

The second category, knowledge support mechanisms for health delegates, was drawn from four questions. These questions firstly looked at the type of support given to health delegates prior to mission departure in terms of appropriate knowledge-based reference resources. Second, processes of keeping health delegates abreast of any changes within the humanitarian environment were explored as well as the provision to health delegates of any new or updated reference resources. Finally headquarter staff knowledge of what actual reference resources are available in the assignment location was also explored.

The third category, headquarter staff attitudes towards health delegate competency requirements, was drawn from five questions. These questions explored the organisational cultural of maintaining delegates knowledge base around new changes or issues within the humanitarian environment as well as having a system to measure or gauge professional competencies in their area of practice. Finally, the organisation's ability to train and provide appropriate courses was explored to determine the appropriateness of sending health delegates to the field.

The fourth category, understanding knowledge management processes of headquarter staff, was drawn from one open ended question used to explore both the attitude and organisational culture around the creation, capture, use, and dissemination of knowledge as a resource for health delegates, before, between and whilst on mission.

4.4.4 Stage 4: Analysis of Questionnaire and Key Informant Interviews

To answer the research question, the self-administered questionnaire and semi-structured interview guide were developed around four themes. Each theme was comprised of questions that explored issues relevant to each theme. Initially these themes were developed around the researcher's experience in humanitarian environments. This was later refined through the pilot testing of the questionnaire.

Themes and the relevant questions were then discussed with my supervisor for appropriateness of answering the research question.

The themes for the general health delegates (self-administered questionnaire) and the experienced health delegates (semi-structured interview guide) were the same. Headquarter staff (semi-structured interview guide) themes were slightly different. The purpose of these four themes was twofold. First, to provide an understanding of headquarter practices around knowledge management processes and, second, to explore and understand the impact this has on health delegates' ability to make decisions.

Analysis of interview data remained a continuous process until all interviews were completed. Hand written notes were taken during the interview process to capture any new themes. These themes helped to drive improvements in the collection of data around the research aim and objectives. Audio recordings were replayed by the researcher at the completion of each day's interviews to identify any areas or themes that needed to be further explored in subsequent interviews. All interview recordings were replayed and themes checked for internal accuracy. Returned health delegate questionnaires were read several times to understand content and identify themes and any emerging themes. The questionnaires were then re-read and any emerging themes checked for internal accuracy. Identified and emerging themes were discussed with my supervisor for accuracy and consistency. These themes were then used to help guide key informant interviews as well as to check reliability of collected data (Gibbs, 2007).

All data transcribed from (a) returned health delegate questionnaires, (b) experienced health delegate interviews and, (c) headquarter staff interviews was imported into NVivo 10 and Microsoft Excel spreadsheets as separate sources. All audio recordings were transcribed using Microsoft Word. All transcriptions were played and checked for errors and accuracy, and against the data from the questionnaire.

As a mixed methods research approach, a combination of quantitative and qualitative data was collected and analysed. Quantitative data sets from the questionnaire and key informant interviews were analysed using both Microsoft Excel spreadsheets and

NVivo 10. Excel spreadsheets were used because of the relatively small number of respondents and the ease in which data could be viewed and analysed. Furthermore, quantitative variables were analysed as series of identified survey datasets. These data sets were identified from each of the four questionnaire themes. Experienced and general health delegates four themes were the same. This was done to identify if there was any significant differences between these two sample groups (Bazeley, 2007). Matrix coding queries were used to cross tabulate nodes and results are expressed as a descriptive analysis. Based on results, nodes were created and further explored. Excel spreadsheets were also used to manually correlate demographic profiles for accuracy. Each question was placed into a separate spreadsheet for ease of analysis and to reduce errors in correlation. Each variable was checked and rechecked for accuracy.

The qualitative data analysis was guided by the Framework Approach to Analysis (Pope, Ziebland & Mays, 2000; Pope & Mays, 2006). The key stages used in this research are: familiarisation, identifying a thematic framework, indexing and interpretation.

Familiarisation of the raw data from key informants (a) headquarter staff and (b) experienced health delegates was a continual process of replaying each interview at the end of each interview session or day. This was done to consolidate the information already gathered and to identify key subject matter for further exploration. Themes that started to emerge were further explored in following interviews which provided a deeper understanding of key themes as well as emerging themes.

Thematic content analysis was undertaken to collate and condense the information gathered into distinct and succinct themes and recommendations that could be used to design and direct the remaining research (Pope, Mays & Popay, 2007; Braun, Clarke & Terry, 2014). The aim of the analysis was to produce a succinct and reliable matrix of key themes (Vaismoradi, Turunen & Bondas, 2013). The themes and issues emerging from the analysis were examined for similarities and differences and the distilled themes were then subsequently used to guide the development and design of the portable knowledge tool.

Gaps in the provision of standardised reference resources, best practice guidelines, access to relevant documents and templates, along with issues around being able to retrieve appropriate information in the field provided the operational template for the Portable Reference Tool. Other identified themes such as the provision of peer-reviewed research and journals between and whilst on mission was also considered necessary by health delegates as part of the Portable Reference Tool. Finally, the addition of digital material such as e-books, movies and podcasts used for relaxation purposes was also seen by health delegates as an important part of any Portable Reference Tool.

All qualitative data was coded using NVivo 10 into parent nodes for each sub-group of respondents, i.e. ARC, BRC, CRC, IFRC, and ICRC. Each node then was assigned a child node for each question. Memo links assigned to each child node were utilised to write notes and relationships between nodes. As thematic content was identified, nodes were created to capture and report findings. Excel spreadsheets were also used for content and thematic coding. Each question was placed into a separate excel spreadsheet for ease of viewing. Answers for each question were then copied into a word document spread across three computer screens for ease of identifying thematic content. Each identified theme and sub-theme was colour coded and specific wording was highlighted to lessen any confusion and improve accuracy. Each theme was checked and rechecked for internal accuracy.

Interpretation of the analysed data was done by comparing identified themes and sub-themes of each of the three respondent groups. Demographic information from the three respondent groups were analysed separately to build a professional profile. All three groups were then compared to find similarities and associations of professional experience. This helped provide baseline identification of respondents' understanding of humanitarian action through association of experience, roles, and educational profiles. Remaining headquarters themes were contrasted against health delegate and experienced health delegate themes. This was done to find associations between the themes from different operational roles, i.e., non-field positions in headquarters and health delegates in the field. Finally, experienced and general health delegates themes were compared with each other for similarities and or discrepancies. The identified themes from the three respondent groups were used to provide and understand organisational attitudes and culture in regard to professional and knowledge

management of health delegates. Similarly, these themes were also used to provide a clear understanding of the needs and issues of health delegates in the field towards accessing and using professional peer-reviewed standards and other professional guidelines.

Finally, as I had worked as a headquarter staff member at the ARC, and as a health delegate for the ICRC, IFRC, and ARC it was important to recognise the possibility of researcher bias influencing data collection. With this in mind the research design collected data from an array of contrasting perspectives to reduce the potential for bias (Pope & Mays, 2006). A strategy of self-awareness or reflexivity was employed (Burke Johnson, 1997). Being self-aware of researcher bias, all key informant interviews were replayed several times with themes or emerging themes reviewed for accuracy. All notes taken during these interviews were re-read to challenge any preconceived ideas harboured by this researcher.

To further reduce the chance of researcher bias I administered a pilot questionnaire to a small subset of health delegate respondents and reviewed their comments around the instruments' structure, content, appropriate range of responses, ambiguity and difficulty (Chenail, 2011). Small changes were made to the questionnaire instrument in response to comments from this sample group.

4.4.5 Stage 5: Development of the Portable Reference Tool and Evaluation

The development of the Portable Reference Tool was guided by the literature review and the data provided by the study respondents. The literature review provided the groundwork in understanding the development of new digital technologies and the limitations that exist in their implementation. Furthermore it was important to understand the gaps and limitations that exist in data collection and data analysis within humanitarian action. It was equally necessary to understand weaknesses in decision-making processes and program delivery.

The analysis of data from (a) health delegate questionnaires, (b) headquarter staff interviews, and (c) experienced health delegate interviews provided the understanding of knowledge management practices from field and non-field operational perspectives.

Data from health delegate questionnaires and health delegate interviews provided an understanding of the operational needs and limitations in knowledge management practices, decision-making processes, and continuous professional development. Additionally, it was important to understand how the headquarters level viewed knowledge management practices and how they used knowledge resources.

By contrasting the knowledge management activities of (a) headquarter staff and (b), health delegate survey groups (experienced health delegate interviews and health delegate questionnaires) limitations and strengths were able to be identified in knowledge management practices. It is this understanding that has provided a framework for the development of the Portable Reference Tool and further recommendations.

The evaluation of the Portable Reference Tool was completed by two experienced health delegates. The review process was carried out in Brisbane (Australia) and involved a practical demonstration by the researcher and a period in which the experienced health delegates could explore and use the developed tool. There were no time limitations given for the experienced health delegates to review the developed tool. Once the evaluators had trialled the tool, a 18 point semi-structured questionnaire was used to interview the experienced health delegates (See Appendix 6). Interviews were recorded for internal accuracy. Data from the interviews was analysed manually. Findings from this evaluation led to changes being incorporated into the Portable Reference Tool.

4.5 Rigour in Research

Yarborough (2014) emphasised for the public to hold trust with the scientific community, trustworthy research is paramount. He states that “published scientific results will be reliable, that research has the potential to contribute to the common good, and that research will be conducted ethically” (p.3841). Golafshani (2003) adds that reliability, trustworthiness, validity, and rigour are essential elements for sound research. This study used the concepts as outlined in Figure 4 to strengthen the trustworthiness, validity and rigor of this research.

TRUSTWORTHINESS OF RESEARCH

P R E C O N C E P T I O N S

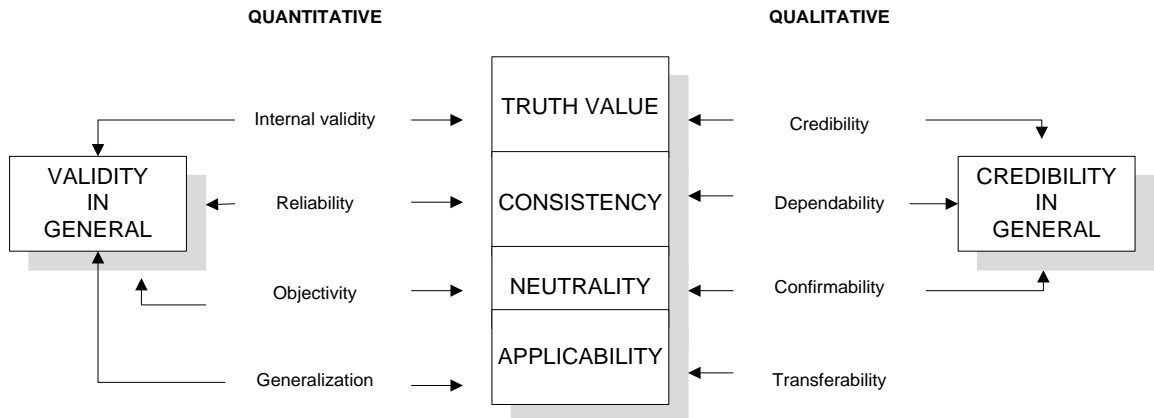


Figure 4. Indicators to Describe Scientific Rigour in Research. (Hamberg, Johansson, Lindgren & Westman (1994, p.178)

Rigour in Qualitative Research.

According to Liamputtong and Ezzy (2005), the term rigour is used to determine the validity and reliability of qualitative research. Other researchers have expanded the concept of rigour to include validation when determining the quality of mixed methods research (Giddings & Grant, 2009). Roberts, Priest and Traynor (2006) state that “reliability and validity are ways of demonstrating and communicating the rigour of research processes and the trustworthiness of research findings” (p. 41). Credibility, dependability, conformability and transferability are, according to Brown, (2005) cornerstones by which good research is measured. Techniques used to ensure rigour in this research are outlined in Table 10.

Table 10: Techniques to Ensure the Trustworthiness of Qualitative Research

Traditional criteria	Trustworthiness criteria	Methods for meeting trustworthiness criteria
Internal validity	Credibility	Activities in the field that increase the probability of high credibility <ul style="list-style-type: none">• Recorded interviews for adequacy• Triangulation of data types to establish validity
External validity	Transferability (Fittingness)	Detailed (thick) description of structures and processes revealed in the data
Reliability	Dependability (Auditability)	Purposive sampling Informants' confidentiality protected
Objectivity	Conformability (Audit trail)	Explicit separation of 1 st order and 2 nd order of findings Reporting data management and findings clearly and meticulously Verbatim transcription of interviews.

Source: Adapted from Lincoln and Guba (1985, p. 328) and Shah and Corley (2006, p.1830).

Rigour in Quantitative Findings

In quantitative research, validity can be measured in terms of external and internal processes (Roberts et al., 2006). Black (1999) asserts that external validity means the findings are able to be applied to other people and other situations under the same circumstances in which the original research was conducted. Whilst this research focussed specifically on the Red Cross movement the literature review highlighted many of the same issues across the broad spectrum of humanitarian aid. Additionally many of the respondents had worked for other humanitarian aid organisations before joining the various Red Cross movement partners. Internal validity according to Roberts et al., (2006) focusses on how the research findings were reached and identifies three ways in which this is done: (1) content, (2), criterion-related, and (3) construct validity. According to Plano, Clark, Creswell, O'Neil, Green and Shope (2014) the use of surveys as part of the research design needs "to have strong construct validity in order for meaningful conclusions to be drawn" (p.367). The questionnaire was pilot tested to improve content validity through strengthening questions and structure of the tool (Creswell, 2009). To strengthen the collection of data pertinent to the research question, open-ended questions were incorporated into the structured questionnaire. This was done to validate the quantitative portion of the questionnaire (Plano et al., 2014).

4.6 Triangulation of Data

According to Mertens & Tarsilla (2015), evaluation of mixed methods research incorporates four strategies in its conceptual framework. First, mixed methods “enhances triangulation by using findings from different sources in order to address the same evaluation question more effectively”. Second, “multiple data collection strategies and instruments build on one another”. Third, mixed methods “facilitates different but important understandings of the same evaluand”. Finally, mixed methods “provides complementarity of qualitative and quantitative findings” (p.430).

4.6.1 Methodological Triangulation

Stake (2008) contends qualitative research is “interested in diversity of perception, even the multiple realities within which people live. Triangulation helps to identify different realities” (p.133). According to Maltby, Williams, McGarry and Day (2010) there are four types of triangulation: (1) investigator triangulation, (2) theory triangulation, (3) data triangulation and (4) methodological triangulation (p.304). This research used a combination of data and methodological triangulation strategies. Multiple methods were used to elicit data to address the research question, (a) a structured questionnaire and (b) key informant interviews. The use of a purposeful sampling strategy strengthened triangulation of data by identifying appropriate respondent groups who (a) worked in health related humanitarian aid and (b) who would be able to provide different operational perspectives.

To answer the research question, the respondents’ responses would be influenced by their different professional roles, mission context and experiences, educational backgrounds, and how they viewed humanitarian work as part of their professional and life choices. By analysing responses from the different respondent groups, a convergence of responses helped build coherent themes. According to Creswell (2009, p.191) this process aids the studies validity. Additionally, by triangulating different sources of data, a deeper understanding of the issues that challenge health aid workers in complex emergencies and humanitarian environments was able to provide a greater comprehension of the research problem (Denzin & Lincoln, 2008; Creswell, 2009; Halcomb & Andrew, 2011).

4.7 Ethical Considerations

4.7.1 Academic and Ethics Approval

The completed research proposal was developed after several drafts and candidacy was approved on the 23 April, 2010. The proposal was further submitted to the Human Research Ethics Committee of Curtin University of Technology. Ethics approval was granted on the 23 April 2010 for a period of three years (see Appendix 1).

4.7.2 Informed Consent

All respondents including those respondents who piloted the sample questionnaire were given a Participant Information Sheet (Appendix 3) either in person or as part of the accompanying email with URL link to the Survey Monkey questionnaire. Wording of the sheet differed slightly for the key informant interviews and Survey Monkey questionnaires. The information outlined on the sheets included:

- Name of the researcher and course the research was undertaken for
- Contact details of the researcher and associated supervisor and university
- Aims and objectives of the proposed research
- Information security of all data collected
- Ethics approval
- That talking about experiences may be difficult and that there was no obligation to answer questions (key informant interviews)
- That participation in the research was completely voluntary

Key informant respondents were asked to sign a consent form (see Appendix 2). Health delegates who received the Survey Monkey questionnaire after reading the information sheet, were asked if they agreed to participate in the research. Upon agreement they could then click a link to begin the research questionnaire. All respondents were advised that they were under no obligation to answer any questions.

4.7.3 Confidentiality and Data Storage

No identifying data of participants was recorded. This included names, dates of birth, sex, and email addresses. The details of respondents who completed and emailed the sample questionnaire and signed consent form were deleted after the questionnaire and consent forms were printed out. Whilst the signed consent forms had the respondents'

signature, no identifying link was recorded between the respondent and their completed survey.

All completed questionnaires and signed consent forms were held and accessed only by the researcher. Audio transcripts from key informant interviews were downloaded onto the researcher's laptop and password protected. Once back from fieldwork all data was transferred onto the researcher's desktop computer. Access to the desktop computer was password protected. All printed hard copies of the research data were kept in the researcher's office which was electronically locked, requiring a numerical digit input for entry. All data on the laptop and audio recorder was erased.

4.8 Summary

This chapter has presented the rationale, aims and objectives of this research as well as the five stages of the study design and the methods used to collect the data. Additionally the mechanisms for analysis of quantitative and qualitative data and the tools used were also discussed as well as strategies for reducing the potential for researcher bias. The following chapter presents the quantitative analysis of the three survey groups: general health delegates (returned questionnaires), Red Cross headquarter staff (key informant interviews) and experienced health delegates (key informant interviews).

Chapter 5: Descriptive Data Analysis and Profile of Study Participants

5.0 Introduction

This chapter presents the descriptive data of the three sample groups totalling 86 respondents. Professional demographics such as primary and postgraduate qualifications and humanitarian working history including types of roles and organisations worked for, were collected. Basic data on attitudes towards humanitarian engagement and knowledge management issues was also collected. These themes were further expanded in qualitative analysis in Chapter 6. Quantitative results are presented in a combination of bivariate and multivariate statistics.

5.1 Quantitative Arm of the Study

5.1.1 Description of the Sample

5.1.1.1 Professional Characteristics of the Respondents

The following section summarises the professional demographics of the 86 respondents who participated in this research. The respondents were recruited using a purposeful sampling strategy. The three separate sample groups among the 86 respondents were 21 headquarter staff (24.41%), 6 experienced health delegates (6.97%) and 59 general health delegates (68.60%). One on one interviews were conducted with headquarter staff and experienced health delegates, whilst the general health delegates were emailed a link to the questionnaire using Survey Monkey.

The 21 headquarter respondents were recruited from the Australian Red Cross (ARC), the British Red Cross (BRC), the Canadian Red Cross (CRC), the International Committee of the Red Cross (ICRC), and the International Federation of the Red Cross and Red Crescent Societies (IFRC). The six experienced health delegates were recruited through the ARC, CRC and the ICRC using selection criteria of having completed a minimum of six humanitarian missions in a health related position. The 59 general health delegates were emailed the questionnaires through the national societies of the ARC, BRC, CRC, as well as the ICRC.

5.1.1.2 Age

This section summarises the age demographics of the three target group respondents. The summary of this data is in Table 11 and Figure 5. The 50–59 year age group represented the largest of the five age group categories. Both the 30–39 and the 40–49 age groups had an even spread of 23 respondents each. The two age brackets 50–59 and 60–69 represented 45.34% of the combined sample groups. The youngest respondent was 28 years of age whilst the oldest was 65 years of age.

The headquarters group had an even spread of ages from the 30–39 to 50–59 year age group with an overall mean age of 44 years. The six experienced health delegates had an average age of 54.66 years. Most of this group was aged 50 years or older with only one respondent in the 30-39 year old bracket. The general health delegates group had representation across all age brackets. The 50–59 age category was the most represented whilst the 30–39 and 40–49 had an even spread of respondents. Just 11.86% of respondents were in the 60–69 age group.

Table 11: Age Characteristics of 86 Respondents

Age Group	Headquarter staff	Experienced Health Delegates	General Health Delegates
20-29			1.69% (n=1)
30-39	33.33% (n=7)	16.66% (n=1)	25.42% (n=15)
40-49	38.09% (n=8)		25.42% (n=15)
50-59	28.57% (n=6)	50.00% (n=3)	35.59% (n=21)
60-69		33.33% (n=2)	11.86% (n=7)
Mean Age	44	54.66	47.40

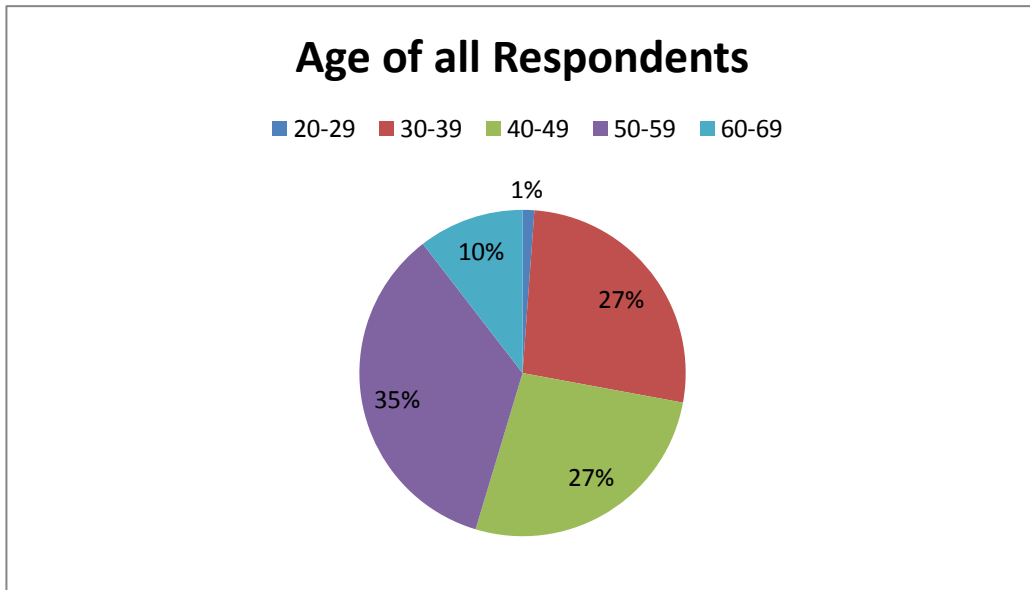


Figure 5: Age of all Respondents

5.1.1.3 Primary and Postgraduate Qualifications

In both interviews and questionnaires, respondents were asked to provide details of their primary and postgraduate qualifications. Respondents were further asked if any postgraduate qualifications were public health or humanitarian health related. These questions were to gauge if postgraduate qualifications were primarily focused on professional roles within their home country or as part of their professional development in the humanitarian environment. The data is summarised in Table 12 (primary qualifications) and Table 13 (postgraduate qualifications).

Of the 86 respondents, registered nurses and medical doctors accounted for the majority of primary qualifications. Scientists, mental health practitioners and laboratory technicians were the next most common. From the 86 respondents only one person had no primary qualification. Sixty respondents had some form of postgraduate qualification in either a public health or humanitarian related field with just under a third of respondents having no postgraduate qualification. Table 13 outlines the data with respect to postgraduate qualifications across the three survey groups.

Table 12: Primary Qualifications of all Respondents

Qualification	*HQ (n=21)	**EHD (n=6)	***GHD (n=59)	Total (n=86)
Registered Nurse	33.33% (n=7)	100% (n=6)	42.37% (n=25)	44.18%(n=38)
Medical Doctor	19.04% (n=4)		33.89% (n=20)	27.90%(n=24)
Scientist			6.77% (n=4)	4.65% (n=4)
Laboratory Technician			5.08% (n=3)	3.48% (n=3)
Mental Health Practitioner			5.08% (n=3)	3.48% (n=3)
Registered Midwife	4.76% (n=1)		1.69% (n=1)	2.32% (n=2)
Nurse Anaesthetist	4.76% (n=1)			1.16% (n=1)
Architect	4.76% (n=1)			1.16% (n=1)
International Relations Degree	4.76% (n=1)			1.16% (n=1)
Human Resource Management	4.76% (n=1)			1.16% (n=1)
Economics Degree	4.76% (n=1)			1.16% (n=1)
Behavioural Science	4.76% (n=1)			1.16% (n=1)
BA Psychology	4.76% (n=1)			1.16% (n=1)
Applied Health Communication	4.76% (n=1)			1.16% (n=1)
Pharmacist			1.69% (n=1)	1.16% (n=1)
Nutritionist			1.69% (n=1)	1.16% (n=1)
Public Health Practitioner			1.69% (n=1)	1.16% (n=1)
No Qualification	4.76% (n=1)			1.16% (n=1)

*Headquarter staff **Experienced Health Delegates ***General Health Delegates

Postgraduate Humanitarian Qualifications

Nearly 70% of all respondents and the majority of each survey group had some form of postgraduate qualification (see Table 13). The large majority of general health delegates (41) commented that they had a postgraduate qualification in a public health related field. This figures drops when asked if they had a postgraduate qualification in a humanitarian related field. As identified in Table 14, only 22.03% of the general health delegates had a humanitarian-related qualification. Seven of this survey group

identified the same qualification as both public health and humanitarian related. From this survey group of 59 respondents only six respondents had separate humanitarian qualifications.

Of the experienced health delegates all six stated they had a postgraduate qualification of some sort. Two respondents stated they had a formal qualification in a humanitarian related field (Table 14).

Of the 21 headquarter respondents 13 had some form of postgraduate qualification. All 13 respondents stated their postgraduate qualifications were more humanitarian related. However a third of all headquarter respondents had no postgraduate qualifications (Table 14).

Table 13: Postgraduate Qualifications of all Respondents

	*HQ (n=21)	**EHD (n=6)	***GHD (n=59)	Total (n=86)
Yes	61.90% (n=13)	100% (n=6)	69.49% (n=41)	69.76% (n=60)
No	33.33% (n=8)		30.50% (n=18)	30.23% (n=26)

Headquarter staff **Experienced Health Delegates *General Health Delegates*

Table 14: Humanitarian Related Qualifications of all Respondents

Qualification	*HQ (n=21)	**EHD (n=6)	***GHD (n=59)	Total (n=86)
Yes	61.90% (n=13)	33.33% (n=2)	22.03% (n=13)	32.55% (n=28)
No	38.09% (n=8)	66.66% (n=4)	77.96% (n=46)	67.44% (n=58)

Headquarter staff **Experienced Health Delegates *General Health Delegates*

Postgraduate Non-Humanitarian Qualifications

Of the 69 identified postgraduate qualifications, 53 master's degrees accounted for 76.81% (n=53) (Table 15). Just under half of these qualifications were a Master of Public Health (45.28%). Graduate diplomas in international and public health accounted for 14.49%, whilst short courses and bachelor degrees accounted for 2.89%. Overall seven respondents had two master's degrees. One headquarter staff respondent had two master's whilst six general health delegates had two master's degrees. Only one respondent had completed a PhD.

Table 15: Types of Postgraduate Degrees

Qualification	*HQ (n=21)	**EHD (n=6)	***GHD (n=59)	Total
Short Courses	2			2
Graduate Diploma	3		7	10
Bachelor Degree		2		2
Master Degree	11	3	40	53
War surgery training			1	1
PhD			1	1
Total				69

Headquarter staff **Experienced Health Delegates *General Health Delegates*

5.1.1.4 Headquarter Respondents: Time in Position and Red Cross Experience

Table 16 summaries the duration of time in their current position and overall Red Cross experience for each group of headquarter staff from a variety of Red Cross organisations. The purpose of this question was to understand the level of operational experience they had in their current position and to determine the level of experience they had within the Red Cross movement.

Duration of time in their current position and total time working for the Red Cross varied markedly amongst the sample of headquarter staff. On average, respondents working at the headquarters of a Red Cross organisation had a vastly greater duration of experience working on mission in the field compared with duration of experience working in their current headquarter position. This result was consistent across all five Red Cross organisations surveyed. The combined figure of all headquarter staff was 203.49 years (mean 9.69) of total Red Cross experience compared with headquarters experience of 56.17 years (mean 2.67) (Table 16). The duration of time in their current position ranged from two weeks up to 21 years and total individual Red Cross experience ranged from 4 months up to 25 years.

The Canadian Red Cross headquarter staff as a group had the largest amount of time in their current position with 22.45 years but one respondent had worked for 21 years in their position with the Canadian Red Cross.

The Australian Red Cross had only two headquarter staff (28.57%) with over 12 months experience in their current position. The remaining respondents (71.42%) had between two weeks and 10 months experience. The total time in their current position for the ARC headquarter staff as a group was 9 years 10 months three weeks. The International Committee of the Red Cross headquarter staff all had significantly more field based experience. However only one respondent had less than two years of headquarter experience. Overall the data suggests that headquarter staff should have a solid level of understanding of the various operational roles each Red Cross movement partner plays, as well as an awareness of both the field environment and the different roles health delegates are asked to undertake.

Table 16: Time in Position and Time Working for the Red Cross

	Time In Position (Years/Months)	Time working for Red Cross (Years/Months)
ARC	4 years	5 years
	4 months	4 months
	6 months	10 years
	2 months	6 years
	4 years*	4 years
	3 weeks	4 years
	10 months	2.5 years
<i>Total</i>	<i>9 years 10 months 3 weeks</i>	<i>31 years 9 months</i>
BRC	4.5 years	4.5 years
	6 months	6 years
<i>Total</i>	<i>5 years</i>	<i>10 years 6 months</i>
CRC*	1 year 3 months	12 years
	21 years*	21 years
	2 months	2 years 2 months
	2 weeks	15 years
<i>Total</i>	<i>22 years 5 months 2 weeks</i>	<i>50 years 2 months</i>
ICRC	3 years	10 years
	1 month	12 years
	2 years	12 years
	3 years	6 years
	3 years	20 years
	3 years 6 months	20 years
	3 years	25 years
<i>Total</i>	<i>17 years 7 months</i>	<i>105 years</i>
IFRC	1 year 3 months	6 years
<i>Total</i>	<i>1 year 3 months</i>	<i>6 years</i>
Headquarter		
staff Total	<i>56 years 2 months 1 week</i>	<i>203 years 5 months</i>

* Human Resource Managers with no humanitarian field work experience

5.1.1.5 Headquarters, Experienced and General Health Delegate Respondents: Mission Experience and Operational Roles

This section summarises the three target group's mission experience and the types of roles performed whilst on mission as presented in Tables 14–19. Furthermore a breakdown of Red Cross missions highlighting the different types of roles within the Red Cross movement is summarised in Table 20. A differentiation is also made between missions for various Red Cross partners and other humanitarian organisations. A broad range of the types of operational roles undertaken is also described and whether, whilst on mission, their roles had changed. The purpose of this data is twofold: first, to gauge the range of Red Cross and other humanitarian experience as well as to understand the many and varied roles health delegates are tasked to perform; second, to contribute to a broader understanding of the humanitarian environment and its numerous characteristics.

Headquarter Respondents

Of the 21 headquarter staff interviewed 19 had completed at least one humanitarian mission⁸. Missions under the auspices of the Red Cross movement accounted for 81.89% of all missions with 18.10% completed with other humanitarian organisations (Table 17). Staff from the CRC and IFRC had only completed missions with the Red Cross whilst the BRC respondents had completed all but one (7.69%) within the Red Cross movement. Of the national societies the ARC had the lowest incidence (64%) of Red Cross missions. The ICRC respondents identified both the number of missions they had completed and the total number of years of full-time humanitarian work. Some respondents were unable to identify accurately the number of missions they had completed due to the large amount of time working in the humanitarian environment. Three respondents had worked a total of 16 years, 18 years and 25 years full-time between the field and headquarters.

⁸ The definition of humanitarian mission for this research is an individual undertaking humanitarian work either in a natural disaster, development or conflict related context outside their country of origin for a humanitarian organisation

Table 17: Number of Missions: Headquarters Respondents

	No Missions	Red Cross Movement	Other Humanitarian Organisations	Total Missions
	<i>n</i>	<i>n</i>	<i>n</i>	
ARC (7)	1	16	9	25
BRC (2)		12	1	13
CRC (4)	1	6	0	6
IFRC (1)		12	0	12
ICRC (7)*		49	11	60
Total		95 (81.89%)	21 (18.10%)	116

*Three ICRC respondents identified their years in the field with organisations as they couldn't remember how many missions they had completed

Experienced Health Delegates

The six experienced health delegates had completed 58 missions, 48 with the Red Cross movement and 10 with other humanitarian organisations (Table 18). The ICRC was the most frequently worked-for Red Cross organisation representing 58.62% of total missions, followed by the Emergency Response Units (ERU) (8.62%) and national societies.

General Health Delegates

The general health delegates who completed the emailed questionnaire had a combined 456 missions of which Red Cross missions accounted for 68.20% as shown in Table 19. Missions with other humanitarian organisations accounted for 31.79% of the total missions in this group, which is higher than both headquarter staff (18.86%) and experienced health delegates (17.24%). This could be in part due to the larger number of respondents (59) and a wider cross section of humanitarian Red Cross health delegates recruited through the three national societies and the ICRC.

The ICRC was the most frequently worked for Red Cross organisation accounting for 73.31% of Red Cross missions. The national societies collectively were the next most frequently worked-for Red Cross organisation with 39 missions (12.54% of the 456 missions). The Red Cross Field Assessment Coordination Team (FACT) had the least number of respondents and fewer experienced health delegates working for it. The explanation for this is that FACT is a more specialised response capacity within the

IFRC and is used in major natural disasters with a rapid deployment time of 24–48 hours.

Table 18: Experienced Health Delegate Missions, Red Cross Organisation, Specific Operational Role

	Red Cross Missions	Non-Red Cross Missions	Total Missions
ICRC	58.62% (n=34)		
ERU	8.62% (n=5)		
FACT	3.44% (n=2)		
IFRC	5.17% (n=3)		
*N/S	6.89% (n=4)		
Total	82.75% (n=48)	17.24% (n=10)	58

**National Society*

Table 19: General Health Delegate Missions, Red Cross Organisation, Specific Operational Role

	Red Cross Missions	Non-Red Cross Missions	Total Missions
ICRC	73.31% (n=228)		
ERU	4.18% (n=13)		
FACT	2.25% (n=7)		
IFRC	7.71% (n=24)		
*N/S	12.54% (n=39)		
Total	68.20% (n=311)	31.79% (n=145)	456

**National Society*

Of the 86 respondents surveyed (Table 20) 41.86% had only worked for the Red Cross while 58.13% had worked for both the Red Cross and other humanitarian organisations.

Table 20: Summary of all Respondents' Red Cross Missions and those Completed for other Humanitarian Organisations

	Red Cross Missions Only	Non-Red Cross Missions
HQ* (n=21)	61.90% (n=13)	38.09% (n=8)
EHD** (n=6)	16.66% (n=1)	83.33% (n=5)
GHD***(n=59)	37.28% (n=22)	62.71% (n=37)
Total (n=86)	41.86% (n=36)	58.13% (n=50)

Headquarter staff **Experienced Health Delegates *General Health Delegates*

Of the 86 respondents, 84 had completed at least one humanitarian mission. The 84 respondents identified 67 different operational positions across 241 missions. The most common operational role performed was that of the health delegate, accounting for 24.48% of all operational deployments. This was followed by medical coordinators (12.86%), program managers (11.20%), and ward nurses (8.29%). Table 21 summarises all the operational positions completed by the three respondent groups.

Table 21: Field Positions of Headquarters, Experienced and General Health Delegate Respondents

Operational Roles	<i>n</i>
Camp manager	1
Clinical educator	1
Community development delegate	1
Co-operation delegate	1
Detention delegate (2) Protection delegate (1)	3
Disaster management delegate	1
Emergency delegate	1
FACT team leader	1
Field delegate	1
Head/Deputy Head of Delegation	4
Health advisor	1
Health delegate	59
Health promotion	1
Hospital administrator (1) Hospital project manager (1)	2
Human resource operational support	1
Laboratory supervisor	2

Logistics positions which include Logistics coordinator (1), Logistics delegate (1), Medical logistician (4),	6
Malaria clinical trial researcher	1
Medical positions requiring a medical degree (Doctor) which include Medical detention delegate (1), Anaesthetist (2), Surgeon (4), Primary health care Doctor (7), Detention Doctor (1), Medical delegate (3),	18
Medical administrator	7
Medical co-ordinator	31
Medical/Surgical education and Training officer	1
Mental health consultant (1) Mental health officer (1)	2
Monitoring & Evaluation delegate	3
*Nursing positions include Clinical nurse(1), Community nurse (1), District health nurse (1), Field nurse (1), Flight nurse (1), Flying surgical nurse (1), Head nurse (3), Health education nurse (1), Midwife (6), Mother & Child health nurse (1), Nurse anaesthetist (1), Nurse manager (1), Operating theatre nurse (5), Public health nurse (1), Teaching nurse (2), Ward nurse (20), War surgical nurse (1)	48
Nutrition delegate (2), Outreach nutrition delegate (1)	3
Outreach delegate	1
Pharmacist	1
Program manager (27) Program consultant (1)	28
Psychosocial delegate	1
Public Health delegate	2
Relief delegate	1
Shelter co-ordinator	1
Teaching project manager	1
Technical advisor	1
Training TBAs	1
Water and sanitation delegate	1
Water & Sanitation health promotion	1
Total Roles	67
Total Missions	241

*Two respondents had no field experience

Both the experienced health delegates and general health delegates were asked if their role had changed during their field missions (Table 22). Significantly, two-thirds of experienced health delegates and general health delegates stated their roles had indeed changed as explained by these respondents:

“I was asked to do more public health type of work in an IDP camp. I was a little overwhelmed and unsure what things I should prioritise”

(E1, experienced health delegate with nine missions)

“Well you often end up doing two jobs because people are you know like going on leave or go on holiday or people get sick. So you often end up doing acting up positions at the same time as your job while you’re there”

(G8, general health delegate with three missions)

Table 22: Changing Roles

	Role had changed	Role hadn’t changed
Experienced health delegates (n=6)	66.66% (n=4)	33.33% (n=2)
General health delegates (n=58)	68.96% (n=40)	31.03% (n=18)

5.2 Summary

This chapter has provided an analysis of the descriptive data for the three sample groups. Professional demographic data was used to build a professional profile of both the headquarter staff and those health delegates based primarily in the field. The next chapter presents the qualitative findings of the three sample groups researched.

Chapter 6: Knowledge Management Culture

6.0 Introduction

This chapter outlines the findings and the major themes identified through interviews with 21 headquarter staff and the six experienced health delegates, as well as the 59 questionnaires returned by general health delegates. Extracts from interviews are used to highlight the identified major themes. Each respondent group is identified by a letter and number. The letter identifies the respondent group, (A)-Australian Red Cross, (B)-British Red Cross, (C)-Canadian Red Cross, (IC)-ICRC, (IF)-IFRC, (E)-Experienced Health Delegates, and (G)-General Health Delegates. All interviews were conducted by the researcher. As discussed in Chapter 4 headquarter staff interviews focused on exploring the level of support provided to health delegates through various stages of deployment as well as exploring the culture of knowledge management practices. Experienced and general health delegate questions looked to understand attitudes and practices towards humanitarian employment and professional practice competencies. Health delegate responses were explored to identify themes surrounding information use, their ability to access information and types of knowledge management methods that could better support health delegates' decision-making processes in the field.

6.1 Qualitative Arm of the Study

6.1.1 Headquarter Staff Operational Culture

This section explores various operational mechanisms used by headquarter staff in the management of health delegates both during mission and between deployments. Furthermore, it explores the current headquarter staff utilisation of knowledge management systems to provide appropriate levels of suitable reference resources to health delegates. Each headquarter group findings are reported individually. This is done to not only identify the main issues but to provide a larger context into which these findings can be generalised.

To gauge the level of knowledge-based support to health delegates, headquarter staff were asked four questions:

1. Do you provide reference material to health delegates going on mission?

2. Do you provide the health delegate current educational or new reference material/changes within the humanitarian environment between missions?
3. Are you aware of open access journals? If yes what type and areas.
4. In the country/area/type of assignment are you aware of the type of reference material available?

All five headquarter sample groups provide a variety of reference material related to specific mission description and country specific information but no standard sets of reference material are given to health delegates. A range of comments from each headquarter group help highlight the differences in types of information given and the lack of standardised reference material.

“We do try and provide them with at least basic things that they can travel with, depending on what the mission is.” (A1)

“Usually just for their role, so for example if there was an ICRC delegate go to Afghanistan that we were either funding or contracting, I might provide information around a particular health issue.” (B1)

From the ARC headquarter staff, the majority acknowledged a lack of standardisation in reference or general information material given to health delegates. Both headquarter staff from the BRC also acknowledged a lack of standardisation on material given to deploying health delegates. This was similar with the CRC headquarter staff. Of the four headquarter staff interviewed, one was unsure about what reference material was given, due to their short tenure in the job. Half of the headquarter staff said basic mission-specific information was given, plus several hard copies of reference books but they differed on what information was provided to deploying delegates. This again suggests that no standardised set of reference material was provided.

The IFRC headquarter staff provided both mission-specific material and a wider set of reference tools for health delegates but there was no mention of standardisation of material. The ICRC headquarter staff results were similar to the other headquarter staff groups mentioned in as much as the types of material given. Overall, the ICRC headquarter staff confirmed that whilst they provided mission specific or some form

of reference material, there was little standardisation in the ICRC for providing information to deploying health delegates.

As one headquarter staff replied when asked about providing reference material:

“I do that by my own, it’s not something written or compulsory, but I consider it important to make the thought of selecting all the key documents.” (IC2)

Similar results are seen with the provision of education or new reference material and updates around issues or challenges within the humanitarian environment to health delegates between missions. Across the five headquarter staff groups there was no standardised practice to provide these types of resources to health delegates. Most respondents—but not all—from the ARC said some standard information was given at times. The ARC emailed a monthly newsletter in which some new information was provided to delegates, including training opportunities and the occasional reference resource. There were no continuing knowledge management practices aimed at keeping health delegates abreast of the humanitarian environment and best practice initiatives. This piecemeal approach in providing health delegates with the necessary educational resources is highlighted by the following comment:

“We have an ongoing education approach through our newsletters. It’s not specific to missions. So for example if a particular piece of research we thought was relevant to all delegates we might link it from the upfront newsletter where there’ll be a you know a bit of a summary what they could learn from the document and then a link to the document online. But that’s as far as I’d go to answer that question. We wouldn’t, we don’t do anything. There’s not a lot of best practice information sharing happening at the moment.” (A5)

Both BRC and CRC headquarter staff stated they did not have any system in place that allowed them to provide this type of service. Most ICRC headquarter staff said that there was no formal process in providing reference resources to health delegates between missions. However, when discussing health initiatives in prisons or detention activities several respondents revealed there was a genuine attempt to disseminate new information to health delegates working in this area, albeit on an annual basis. Just

under a third of ICRC headquarter staff mentioned that any new reference material is placed on the health unit database, an electronic database that ICRC staff can access through their own intranet. As access to this database is for ICRC employees only, those health delegates not on contract and between missions have no access. The following comments from ICRC headquarter staff help frame the attitudes towards providing delegates with appropriate resources when not on mission:

“No. People frankly are expected to, probably to search for themselves. If, for example the health coordinators come once a year, anything that we find new that’s been updated we will pass that on. We have the health unit database where if we were really well organised there’s only a few things we would update reference material on that. I think the difficulty is keeping things updated... And people are left fairly much alone yeah.” (IC6)

“I don’t send them anymore reference documents, I refer them to the database. I don’t know if it works. Before that they would call me. What about measles, do we have something about measles, I would send it. Now I say go on the health unit database and if it does not work come to me. So I try to push them to go there.” (IC4)

The IFRC headquarter staff stated they had no system for updating reference resources to health delegates between missions as this comment highlights:

“To networks not in a structured way in a sense that everybody gets it, there is no such system but I have a kind of private network with which I share information, and new findings.” (IF1)

The third question explored if headquarter staff were aware of, and used, open access or other types of journals to augment their ability to stay current with trends and current practices. The majority of headquarter staff from the ARC were not aware of open access journals and the remaining headquarter staff who were aware of them said they were not provided to delegates. Only one headquarter staff member actively used open access journals. The BRC headquarter staff had heard of them but did not use them for research, rather for publishing their own reports or research. As one headquarter staff stated:

“Yes. Mainly for publication. If we’ve had somebody for example, if I was doing a consultancy and we were looking at you know ways of getting information out.” (B1)

All four CRC headquarter staff commented that they were not aware of open access journals.

The IFRC headquarter staff were aware of open access journals and actively used them. However when asked if they had time to read them commented:

“Much too little. There is not enough time to read. Either there is not enough time to search in a structured manner like doing a proper search. Of course you come across stuff that is interesting and that I put somewhere for future reference and I don’t have enough time to read it.” (IF1)

Of the seven ICRC headquarters staff, all were well aware of the various types of journals available and had the ability through the organisation to access them. One headquarter staff mentioned that open access journals did not normally have the article they were looking for, most said they didn’t have time to read journals, and one headquarter staff in a position to make decisions about journal subscriptions revealed they had cancelled three journals because nobody read them. Furthermore there appears to be more of a culture of waiting for the information to be presented as opposed to sourcing it themselves:

“I think the biggest way we get new information is having visiting speakers who will sometimes come to the unit. We’ve had people in about cholera and stuff like that but well for reading journals hopeless.” (IC6)

Headquarter staff were asked if they were aware of the types of reference material available to health delegates on mission. From the ARC headquarter staff less than a third had knowledge of available resources in any given country of operations:

“Only in the country that I’ve been to and it does vary. It does vary with the country and the delegation in the country.” (A6)

“Depending on the country. Some countries I do only because of my personal experience of being in that country but in other countries no I’m not aware.” (A7)

Another headquarter staff commented that people were encouraged to source information themselves:

“We tend to encourage delegates to try and source local material, like local information so visit the local ministry of health and get data from that and all of that kind of stuff but how. The reality is a lot of our delegates go out into the field so the time that they spend in say a country international headquarter or even a district headquarter for that matter is quite limited. So I don’t know how much in reality they are able to do it.” (A1)

Both BRC headquarter staff stated they were unaware of what reference material was available in countries where health delegates were assigned but one mentioned that it depended on their knowledge of a particular country:

“It depends on my knowledge of the country, like in Cambodia I knew, I used to work with an information library for NGOs so they contained any evaluations that were conducted. So it depends on the country. If the country has a good NGO network then yeah great but most of the places I haven’t seen that so.” (B1)

From the CRC most headquarter staff were unaware of what type of reference and educational materials were available in the field. One headquarter staff member raised several issues with reference material in the field from their own personal experience. The comments emphasised the difficulties when not having appropriate reference material available and the very real reality of treating patients in both a professional and ethical manner:

“So the only reference that I remember we had was the WHO guidelines and we had, oh I can’t remember the name of the book you know the white and green book? MSF guidelines yeah and the issue with that, we followed the MSF guidelines but a lot of medication that, that is in the books, like the protocols we don’t have them in the kits. So the kits does not really match with the books that we’re using”

“I know they’re not exactly the same from one national society to the other. Like medication changed, so where I did my training in France the medication where they called them which is not at all what I’ve used with Norway Red Cross which was not the same as what we used with the Japanese Red Cross either. There is quite a lot of difference and when they’re not in the books it’s kind of hard to prescribe and be covered legally if something happened.” (C4)

Another issue highlighted by the IFRC headquarter staff was the reliance on the Internet for accessing reference material by health delegates in the field:

“Well everything depends on their access to Internet basically on missions if that is, that is the question and what they bring with them. Basically missions are not the best place of starting, depending on, on a lot of reference material. I am in many cases the reference bank for many health delegates if they are in shitty places where there is no access to information. So if there are issues that need to be researched that cannot be researched in the field then it would be my job to research. However, we are not alone in the field so often times there is, there are other organisations like WHO and such that are a good resource of information as well and a necessary source of information.” (IF1)

Nearly all ICRC headquarter staff were unaware of what general reference material was available in-country. Half of the headquarter staff stated that program specific information was available in-country; one remarked that health delegates were encouraged to source their own reference material.

Other ICRC headquarter staff were of the opinion that it was the responsibility of each delegation in-country to identify and order the appropriate reference material.

“No because they have a list, they can order their own library for example. Of course when the request came to the headquarters, the head of sector has to sign that we are agreeable to what they are ordering. But after it’s one order to another one and this is lost so we don’t have a real package of what they should have so it’s something that we are working on. One of obligation, each delegation for public health have this material with them.” (IC5)

This was further reinforced by these responses:

“No it’s whatever the experience of the health coordinator. Exactly, up to and I imagine there are many different practices, there’s no standardisation on that, just a result of my experience, I know the value of having some text books.” (IC2)

“No I don’t know what they have in many countries I go, I think it’s not enough. So what I have done I have made an operational library (in-country) for them because as much again as I believe in that I do believe, I still believe in books that is good to have it on paper. So they have a reference library, what I think should be the minimum in a PHC something on communicable disease, something on vaccination” (IC4)

Other ICRC headquarter staff identified the reliance on the health unit data base that could be accessed via the Internet or their own intranet through the Lotus Notes program in-country if available:

“Now more and more except some locations, but more and more you have access to the Internet so meaning that you have access to Lotus Note and if you have access to Lotus Note you have access to this medical database which is, could be greatly improved but at least the wish to set up a set of article or guidelines is here.” (IC2)

There was a general consensus by some ICRC headquarter staff that it was the responsibility of the health delegates to access the appropriate and available reference material which at times they did not. As one headquarter staff commented:

“And this is something we encourage a lot. I mean that’s ok guys we are not here doing babysitting, it means if you have a problem in front of you, related issues, health issues in situations then just also look what’s existing in house, ask us questions if you know, but if you don’t have some people take the initiatives and they look either on the Internet or they find the answer that way and they find the answer and they use the tool”

“Others unfortunately they, you can give them whatever you want but they don’t open this kind of tool. I just give you an anecdote. We have this course which is the detention, health in detention which is on the website, it was done together with the International Medical Association and it is now a kind of obligation for each medical person coming to ICRC to do detention to do this course, it’s on the website and then you got diploma. And we realised that even it was kind of an obligation more than 60 percent they don’t do it.” (IC1)

6.1.2 Health Delegate Competencies Requirements

The next series of questions looked at the level of active processes by headquarter staff in which delegates were required to maintain a level of competence within the humanitarian engagement process. Headquarter staff were asked the following questions:

1. Is there a space between missions for health delegates and if so do you require them to undertake a refresher course on their particular area of expertise or a general overview of the changes within the humanitarian environment?
2. Are there any sort of competency requirements for health delegates to maintain their deployment status other than the normal health registration requirements in their country?
3. Are health delegates required to undertake basic Red Cross training before they go to the field?
4. For those health delegates on ERU rosters are they required to undertake training before deployment, specific training?
5. So for those delegates who have had a long break between missions (greater than 12 months) and then decide to do another mission, do you think these delegates have the overall knowledge and skills to deploy if they have not?

All ARC headquarter staff acknowledged that there was no process by which health delegates were required to stay current with changes or practices within the humanitarian environment regardless of time between missions. On the other hand several headquarter staff made the point that health delegates must have current health registration to deploy and that maintenance of their clinical skills was a requirement for deployment. As one headquarter staff noted:

“We don’t require our delegates to do any training but most of our delegates, particularly when there’s gaps between mission they have full time jobs and usually as part of their full time jobs we expect that they’ll be quite current but it’s not a requirement from our side.” (A1)

Furthermore, the majority of headquarter staff stated that there were no competency requirements for health delegates to maintain in order to keep their deployment status, although one headquarter staff stated it was a requirement to have a first aid certificate.

When asked if health delegates were required to undertake a basic training course before deployment ARC headquarter staff stated that was an operational requirement but it was not an absolute rule:

“Absolutely. All delegates are required. Now do you want to go there, do I turn the thing off. All delegates are required to undergo, it’s now called IMPACT before deployment. But there are some delegates that may do it shortly after deployment because there wasn’t a BTC or IMPACT, available and I know that we do have delegates there that haven’t been.” (A2)

“I don’t know are you aware of the DRT list? Disaster response team list...So ideally if something occurs we would like to send these delegates, all those delegates on that list have actually attended the BTC or IMPACT training. However in recent times we’ve also sent staff, staff who have not done any form of BTC or IMPACT course...True and we’ve sent them to disaster environments...So not all, ideally but not all have attended.” (A3)

As for health delegates undertaking Emergency Response Unit (ERU) training before being able to deploy into an ongoing humanitarian emergency, all ARC headquarter staff agreed that a basic ERU training course was required before deployment on mission. However some headquarter staff were able to identify health delegates who had been deployed without undertaking an ERU training course. Various reasons were given such as:

- the health delegate had the particular skills required and wanted to go right away
- the New Zealand earthquake was seen as a local response
- a particular national society’s ERU has requested staff in desperation
- headquarter staff believe the health delegate had the appropriate skill set

As one ARC headquarter staff noted in referring to the provision of human resources to the Haiti earthquake:

“It was an unprecedented event in terms of human resources worldwide were stretched with Haiti because of the amount of ERUs that were deployed but I think it taught them some lessons and from the feedback we got from our delegates it’s a less than ideal

process. Some of them had difficulties, others of course were like fish to water and just got on and coped with it.” (A4)

When further questioned if health delegates had the skills to deploy there was a mixed response. I noticed as the interviewer that many of the headquarter staff were uncomfortable about providing indepth answers to this question as they were still working for the Red Cross. The headquarter staff were reluctant to give a definitive “yes” or “no” answer, identifying the complex nature of sending people to the field whilst pinpointing their selection process and training courses as the mechanism used to place appropriate health delegates in the field.

Furthermore operational environments and individual personalities were also seen as factors in how health delegates responded and functioned in the field:

“Personality plays a huge role in crisis. I think a lot of people approach Red Cross aspiring to work in a crisis environment but they learn quite quickly that their personalities may be more suited to a development environment which is, you know requires a different pace of, of working. So it’s up to us and them to make that determination pretty early on.” (A5)

The BRC headquarter staff acknowledged they also had no system in place that required health delegates to maintain an engagement with the humanitarian environment. One headquarter staff member explained that they tended to recruit and assess the individual for humanitarian missions then they deployed under the auspices of either the ICRC or IFRC but little was done after deployment:

“I would like to encourage more, close working with delegates because we don’t, it’s almost like we’re being kind of disenfranchised. You know we, we do a lot of the work in recruitment and assessment of the person for a particular post and then we lose them and so we don’t follow up on their expert, their expert areas.” (B1)

The second BRC headquarter staff respondent acknowledged there were a variety of training opportunities for health delegates and that the BRC paid up to half of the course if it was deemed applicable to the health delegates’ areas of expertise. The headquarter staff explained that the BRC did not actively source the training

opportunities; it was incumbent on the delegates themselves. In addition, headquarter staff revealed there were no competency requirements for health delegates to maintain their deployment status. As with the ARC, the BRC headquarter staff acknowledged that there were no requirements or checks for health delegates to maintain a skill set for their humanitarian endeavours apart from maintaining their health-based registration certificate.

Similar to the ARC, a basic training course run by the BRC was a requirement but health delegates were deployed without completing the course due to operational issues. As one respondent remarked:

“Ideally but because of the timing we only run one course a year, and because of the time against the operational needs it often happens that they don’t, they can deploy without the BTC.” (B2)

However, when it came to health delegates on ERU deployment, the BRC headquarter staff stated it was an absolute requirement for standard ERU training and ongoing refresher trainings:

“Yeah. That’s a special case because the two ERUs we run, the logistics and the mass sanitation they have specific training courses, they have refreshers for those so they definitely, they’re slightly different and they are considered under our own, our own staff management.” (B1)

When asked if they felt health delegates had the overall knowledge and skills to deploy both headquarter staff stated that it either varied or that they did not have a process to measure it. Both comments highlighted the variable approach and attitude towards providing support for health delegates once deployed:

“Ahm it varies. You know you get people who are, who are more suitable than others working in an overseas setting and who have more experience but a grasp of some of the technical issues and sometimes you don’t recognise the problems until they’re in the field but usually that’s the problem with the Federation or the ICRC if those issues arise. There’s only so much you can do to assess someone’s suitability for overseas work in the country.” (B1)

“Ideally but I’m not sure we measure it. We do find that people who don’t take the training often have a sharper learning curve if they’ve never worked for the movement before and how the different components of the movement actually work in-country and it’s different to say Oxfam or [SAFE] how they work so they have a sharper learning curve. In our bilateral programs we have found it more beneficial to have people do the training but because they go into such a big delegation, if they’re seconded into the Federation of the ICRC we hope that that cushion helps them but we’ve never measured it.” (B2)

The CRC headquarter staff reported similar results to the ARC and BRC. The CRC headquarter staff acknowledged there can be large gaps between missions for delegates, ranging from as little as three months to more than four years. They further acknowledged there is currently no requirement to undertake a refresher course of any sort. Half of the CRC headquarter staff identified it as an area that needed to be addressed and were considering changes. Although there were courses available such as a FACT and ERU refresher as well as Field School training, one respondent added:

“But it’s the challenge to find a balance between investing money and making sure you’re getting a return on your investment so.” (C1)

One headquarter staff member who acknowledged the importance of refresher training highlighted their frustrations based on personal experience, being deployed after not being on mission for a long period, with weight limitations in airline luggage allowances when carrying hard copies of reference material:

“I would say absolutely yes it would be a must because again as my example I did my training in 2006 and my first deployment was in 2010 and I never had anything other than emails follow ups once in a while saying oh we’ve deployed this and that person but no trainings or nothing else. So when I had a call for deployment I was going through my MFS book and everything but you have 24 hours to pack and get ready so you don’t really have time to look through all your books and everything and try to find the documents and you’re really limited in the amount of stuff you bring. So I didn’t want to overload with kilograms for the flight with books and books but I still needed some references.” (C4)

This headquarter staff member further commented that, although there was a general acknowledgement that refresher training was a necessary requirement to stay current with field practices, there was not, at that time, any competency requirements for health delegates to achieve in order to maintain their deployment status:

“There is your international licence (drivers), your security check, your medical clearance and that stuff. But for your competencies and your knowledge no.” (C4)

As with the ARC and BRC, the CRC headquarter staff acknowledged they had no competency requirements for health delegates to achieve in order to maintain their deployment status, even if there had been prolonged gaps in their time between missions. In general CRC headquarter staff agreed there was no requirement to undertake refresher training but that it was an issue that needed to be addressed. The headquarter staff mentioned that it was an operational requirement for all health delegates to complete a basic training course and that health delegates deployed to an ERU had to complete the appropriate training course. Nonetheless, CRC headquarter staff stated that health delegates were deployed without completing ERU training if the situation warranted it. Haiti was given as an example where a lack of appropriate trained staff were sent in order to fill large deficiencies in field staff numbers.

The IFRC, likewise, had no requirement for health delegates to undertake refresher training but the headquarter staff was of the opinion that that situation should not continue:

“Unfortunately not...Having said that I think we should.” (IF1)

The headquarter staff for IFRC also noted that, other than the normal registration obligations of health professionals, there were no competency requirements for health delegates to achieve in order to maintain their deployment status. The IFRC did not require the health delegate to undertake a basic training course before deployment and, as headquarter staff mention, the basic introduction course to the Red Cross movement could be done online. With the ERU deployments, headquarter staff stated: “We don’t deploy people to ERUs without ERU training” but then added:

“We don’t recommend anybody to deploy people to ERUs who don’t have the ERU training. It’s, especially after Haiti it was discussed whether or not we should look into non-traditional delegates to be deployed to ERUs, perhaps in the later phases when it’s more stable, not in the first rotations which we in exceptional circumstances may have to do like, like Haiti when absolutely everybody’s rosters were empty, all resources were depleted. But basically we don’t recommend that. So whoever has been deployed on an ERU mission without an ERU training I don’t know, maybe. There is no law against it because ERUs are kind of owned by the deploying national society so.” (IF1)

The headquarter staff member further identified issues surrounding the realities of deploying health delegates into emergency environments and highlighted the need to provide appropriate training although this had become problematic due to funding issues. When asked whether health delegates had the knowledge and skills to deploy, it was emphasised the issues of using health professionals from “western clinical hospitals” into emergency environments:

“It’s difficult to deploy without proper training, without prior training, it’s difficult to deploy people from a Western clinical hospital-based clinical reality to missions with the Red Cross. It’s even sometimes difficult to deploy them to ERUs and that’s why we assert that people do need an ERU training because it is not the same to work in an ERU as it is to work in a, in a hospital in a completely different setting. You really do need, we had some of those tools but mainly for funding reasons they haven’t survived. So that’s a gap.” (IF1)

All ICRC headquarter staff acknowledged that, although there was no requirement for health delegates to undertake refresher training or to update their knowledge of changes within the humanitarian environment, health delegates undertaking a Primary Health Coordinator program position were required to complete a one day course during the briefing process on vaccination, as noted below:

“One day is a normal briefing and one day they do e-learning on communicable management for vaccination on topic where they are going. So that’s the way of refreshing, they come one day before...And they like it. The idea of asking them to come to do it when they could do it at home as it’s an e-learning is that again I don’t think that if we ask them to do when they are at home they would not really do.” (IC4)

One ICRC headquarter staff member noted in-house courses were available but financial constraints had become an issue in as much as there were only two sponsored positions available, meaning that if health personnel wanted to do the courses between missions, they had to pay themselves. Outside courses were available but provided only to health delegates already on mission:

“Now outside courses now since two years there is big improvement where we had some kind of partnership with MSF and WHO where we also send people but again another condition they have to be on the mission.” (IC1)

About half of the ICRC headquarter staff mentioned that it was up to each individual to maintain their own knowledge base. Furthermore there were currently no competency requirements for health delegates to achieve in order to maintain their deployment status other than the normal health registration requirements within their home country. It was acknowledged that this was an area that needed to be addressed. The comments below articulate these thoughts:

“No, no, no. That’s something is lacking I think. We are working on that competency to know what we should have and what we have and what has to be improved but that does not exist. We are working on it.” (IC1)

“No but we have been working on competencies according to the various roles of, for example somebody in PHC or hospitals depending on the position that they’re doing they have to have had a recent work in that area.” (IC6)

Some ICRC headquarter staff noted there is now more emphasis being placed on recruiting health delegates with both experience and qualifications in public health to help address perceived knowledge gaps. Pre-deployment training was regarded by all respondents as necessary but not mandatory. Headquarter staff also added it was not always possible due to logistical constraints:

“Unfortunately all the people who are sent to the field, not all of them follow these courses, usually you try your best but sometimes they miss one part, you need them urgently so you send them and after you manage to make them participate or even when

they are in the field then you send them while they are in the field. We are trying to have this basic training which is essential.” (IC2)

“We are pushing more and more. Most of the national society staff which would probably be about 30 percent have done something with their national society. For the ones that are directly employed by ICRC, the ones working in detention they have to do the integration course. A ward nurse may have to wait one or two missions before she gets through or he gets through the integration course (the ICRC introduction course for all delegates). Field staff we would put through more quickly and there has been a big push over the last year for anybody that’s not going through a national society to do the integration course before going to the field but it’s a struggle.” (IC6)

Most ICRC headquarter staff agreed that not all health delegates deploying into the field environment had the required skills or knowledge base. One headquarter staff member (IC7) was non-committal and stated that, “Certainly people learn through their experience with the ICRC and they become more versatile and flexible and more quickly adapted to new situations”.

A small proportion of ICRC headquarter staff felt that health delegates deploying to the field had the technical skills but lacked the analytical skills for planning and evaluation of programs, and was of the opinion that ICRC as an organisation lacked these skills:

“If we have to define the long term project it’s more difficult. It’s not only due to the individual it’s also due to the institution which is an emergency institution which is not very much into that as well. So it’s a lot of things to do but I think, my vision is we lack skill of that and we lack skill to analyse what we are doing.” (IC4)

As one headquarter staff member acknowledged there is difficulty in maintaining a generalist health delegate’s knowledge level and pinpointed the lack of reference material as an issue:

“All no, or it would be an ideal world. No and skill and knowledge, especially when you are specialised it’s complicated, because you, you either work in a highly specialised area, such as you are surgeon, you are head nurses for surgical ward, yes it

is specialised and quite well defined what you have to do. Or you are running a project, ok well defined. But even health in detention is quite well defined also. But then when you are sent in place it could be totally different”

“You can run something highly technical in malaria, in one place and then you are sent elsewhere where it’s more public health and then go and you need to be good in structural support of in health systems. So it’s quite vast, or you go for a mobile health unit which you need some specific knowledge also to have. And here you cannot be up to date for everything, so we need to have some generalists. I consider myself a generalist and it’s not so easy to be up to the art in each and every field...That’s why here it’s good to have those books and reference documents because you can learn on the spot also... But that sometimes is missing.” (IC2)

6.1.3 Knowledge Management Systems of Headquarter Staff

This section explores knowledge management themes as a functional process of the sample group organisations. As Wiig (1993) states, “Without its knowledge, an enterprise could not continue to operate and exist” (p.9). Wiig (1993) further argues that “management structures, traditions and culture, technology and operations, systems and procedures, and the quality of its services and products are all based on and embed the enterprise’s knowledge and expertise” (p.9).

All seven ARC headquarters staff acknowledged that currently they had no information or knowledge management system in place to support delegate deployments and ongoing mission requirements. Two remarks here highlight both organisational attitude and culture, whilst emphasising ongoing issues that impacted on their ability to capture, manage, and use appropriate information resources:

“So at the moment really the most effective way of us logging that information is in our brains. I want to be able to have a system where I can just go to and say what was the big issue in the last three disasters or seven disasters so we don’t do it again. And what I’ve observed in the last few years is that we’re getting more and more, with the development of information technology we’re getting more and more efficient at generating a lot of information. What we’ve not done very well is being able to use that information or, yeah we’re not able to absorb that information and use it in a way that helps us.” (A1)

“There is but even with general delegate deployments you could argue that we have more time to prepare them but yeah in terms of the technical kind of support and preparation yeah there’s not this standardise process. For example where HR (Human resources) will say we’re sending a health delegate to Uzbekistan with the Federation, that should mean that a health advisor maybe can talk to them about the programming tools that they have access to. We haven’t established that system which would be nice I guess.” (A4)

The majority of headquarter staff acknowledged there was no active system to manage lessons learned documentation (LLD) within their current system. One respondent noted that they did use some LLD but only involving their operational processes and these were shared with delegates. Another respondent contradicted this and stated that they did in fact utilise LLD in the form of end-of-mission reports (EOM) but these were only shared with an outgoing delegate if it directly involved them and their place of assignment. The EOM is the summary of the ending delegate’s mission covering pre-deployment, deployment and operational factors but, there did not appear to be a satisfactory way to capture experienced health delegates knowledge when returning from mission:

“In all honesty that’s something we don’t do very well. We, we always ask for an end of mission report obviously. We always ask for an updated resume. But simply as a question of available resources we don’t do a lot of work in terms of analysing, digesting what’s in end of mission reports, what particular experience delegates have gained in the course of a mission. It’s something that we should do, would add a lot of value but I think with the numbers of people we have in the teams or in the delegate team it’s actually quite difficult to do although in principal it’s something we should be doing.” (A6)

In fact the capturing of institutional memory as a whole, not just at the EOM, was an issue identified by respondents:

“And that’s where, that’s where the problem lies because it’s institutional knowledge then and when a person moves on then they’ve taken all that knowledge with them and there’s no way to, to keep track of it and there’s a lot of great experience that comes back from people.” (A1)

“Definitely because the turnover in the Australian Red Cross headquarters is massive. So for example I’m here for ten months, and I’ve only been here for ten months and I’ve got Afghanistan and there’s been a huge amount of delegates including health delegates go through Afghanistan and I’ve only got the knowledge from that ten months of those delegates whereas there was someone prior to me who probably had two years here of information that there’s no record of that is, so a lost opportunity for sure that we should improve on yeah.” (A7)

Monitoring and evaluation mechanisms (M&E) were also seen as an issue by ARC respondents. Two respondents stated that they measured the effectiveness of their response by the size of the delegate footprint. This was explained as the number of delegates deployed across the spectrum of humanitarian missions. The majority of respondents identified a lack of and limitations within the ARC implementing monitoring and evaluation processes and then feeding this information back into a knowledge management process; any monitoring and evaluation of a mission was done through the appraisal system of the delegate, not the impact of the program itself. Other respondents commented that mission activity was measured but not the impact of the mission itself, and that the IFRC was generally relied upon to conduct the M&E.

When a respondent was asked if accountability had become an issue within all humanitarian programming they acknowledged that there was a gap in providing evidence of program impacts to donors. The respondent also noted that implemented programs were not subject to evaluation:

“It’s becoming more of an issue yeah, yeah. But again not driven by our donor so and I think that’s why we’ve been able to be so lax for so long. In terms of we can get money and just say that we’re going to go and deliver this program and to be honest if we did or we didn’t AusAID probably you know would be hard pressed to come back to us and say we don’t think you’ve done this. We don’t have contractual obligations to provide impact evaluation for example to our donor...It’s something that we internally recognise as a huge gap and we really should be doing it a lot better and you know making better use of resources.” (A4)

Likewise, the BRC respondents acknowledged that they have no knowledge management systems in place to support health delegate deployments. Furthermore

capturing institutional knowledge from delegates was extremely limited. One respondent stated: “We don’t have any way of retaining knowledge”, whilst the second respondent differentiated between those delegates seconded to ICRC or IFRC as opposed to their own ERU deployments.

“Well like I said most of them come underneath the umbrella of the Federation or the ICRCs so their knowledge would be particular to the program they’re working on and it could be that the British Red Cross has no particular interest in that program or even the country that they’re going to so it’s, yeah we don’t have ownership of that person so in that sense, and like I say it’s different for the ERUs because they do have debriefings. All delegates have debriefings if they come through British Red Cross but for the ERUs we like to learn what’s worked and what hasn’t worked and what could be done differently in different contexts.” (B1)

The CRC, whilst using a structured information system for delegate deployments, provided limited support to health delegates on and between missions. The IFRC similarly had a limited knowledge management system. A respondent noted an offline library was available to assist health delegates but “was difficult to maintain”. Whilst a limited health information system existed for the ERU network a respondent noted:

“What is, would be closest to that would be the health information system of the ERUs which is not very much a support to the delegates to a certain extent but it’s mainly an information system that transmits, that is there to collect and report clinical data. So it’s not really a primarily a support mechanism for the delegates in their work.” (IF1)

As for capturing and maintaining institutional memory from health delegates the respondent stated:

“That is a big gap. We, I could safely say that we don’t.” (IF1)

Six ICRC respondents said that they did not currently have an information or knowledge management framework within their organisation. The health unit database was their primary mechanism for disseminating and collecting information as well as for accessing reference documents or resources. As one respondent acknowledged when asked if the health delegates are aware of this system:

“Normally they know, they know I have to say 90 percent they know because during the briefing we mention about it and also some people they use it already yeah. Generally they know.” (IC1)

Contrary to that view, another respondent remarked:

“But we don’t have a very open, we don’t have a system for collecting what the world is developing or being updated on meaning some people will say I never have the chance to read or follow what is the latest developments.” (IC6)

Capturing and using institutional knowledge was identified by half of the ICRC respondents as an area that needed to be addressed. The ICRC headquarters staff acknowledged that there was no systematic framework in place to utilise such knowledge inputs but suggested that lessons learned resources could be shared on the health unit database but only if it was agreed to by the delegation involved who undertook the review. Several comments sum up these views:

“I mean we are not good in writing reports. If we don’t write reports it’s the same salary at the end of the month so why to write it. Not everybody writes an end of mission report, then if you are lucky you have a good handover. No I think we are not good. We could be much better. Let’s make it in a positive way.” (IC4)

“If not I think honestly it’s lost...I think so...I have this feeling some of the people while they leave they take what they learn with them.” (IC5)

6.1.4 How Experienced and General Health Delegates View their Humanitarian Engagement

Experienced and general health delegates were asked if they identified their humanitarian work as a long-term or full-time career. This looked at understanding how the health delegates perceived humanitarian work either as a full-time occupational pursuit or work that fitted in and around their professional and social lives in their home country.

Experienced Health Delegates

One respondent stated that their sole primary occupation over the past 13 years was as a humanitarian health delegate. Additionally this person commented they liked to have up to three-months break between missions. The majority of experienced health delegates commented that humanitarian aid work was something they could not commit to as a full-time career. One experienced health delegate acknowledged the difficulties in committing to humanitarian aid work on a full-time basis:

“I think it’s difficult if you want to have another life besides humanitarian aid. It’s hard to have a family and work in the humanitarian field because usually you go unaccompanied.” (E2)

The majority of experienced health delegates identified humanitarian aid work as a long-term career choice. Three quarters of these delegates identified lifestyle—or having the flexibility of being able to commit to a mission when it suited them—as a reason for maintaining a long-term relationship with humanitarian aid work:

“I don’t know if how it is if you start earlier, I started a bit late so for me ok for me it’s work what I always wanted to do at earlier times, earlier in my life I didn’t have the chance and for me I don’t see it as a career but as a work I like and view it as missions here and there I see different countries. Even being a health delegate, same name each time but you have a different field of work...So that makes my life interesting and that’s why I like it.” (E6)

Additionally all the experienced health delegates acknowledged that they have extended breaks between missions with periods ranging from three months to six years.

“Yes, yes I did, always have gaps. Anywhere from six months to two or three years depending on what I’ve been doing in the rest of my life.” (E2)

“Most missions, I at least have twelve months in between. So I think the last few years have been a bit different but that’s because I’ve been deployed on shorter missions. So I’ve had sometimes three months in between missions, but mostly with my long term

missions it's at least twelve months in between because I like to come home and set my feet on the ground for a little while." (E3)

General Health Delegates

Of the general health delegates, just over half viewed humanitarian work as a full-time career with close to three quarters of all general health respondents considering humanitarian aid work as a long-term career.

For those general health delegates who identified humanitarian work as a full-time career, maintaining a work/life balance was seen as an important factor in their continued engagement. Conversely the inability of those general health delegates to maintain an appropriate work/life balance was seen as the main factor in not considering humanitarian work as a full-time career. Three quarters of all general health delegates commented that they have at least 12 or more months off between missions. Factors such as retaining clinical skills in their home countries' health system, maintaining family and social ties/networks, as well as the stressful nature of humanitarian work were identified as reasons for having extended periods away from humanitarian work. As several of the general health delegates commented:

"In a way yes, when I return to Australia I like to take a minimum 3-6mths between missions. During this time I do some casual nursing work in remote areas, thus allowing me to keep my clinical skill up to date." (G53)

"I still like the job I am doing and the feedback I get from HQ and colleges. But I take time off between missions life/work balance." (G17)

The general health delegates also identified the importance of being able to maintain their professional career back home as this comment highlights:

"I am keen to. The limiting factor in the case of longer term deployments is the balance of timing of available positions and sustaining employment in my field in Australia. The increased availability of emergency deployments makes this easier as I can be granted leave without pay from regular employment." (G33)

General health delegates noted that limitations in career structure and ongoing career opportunities restricted their ongoing engagement in humanitarian work. Whether respondents viewed humanitarian work as a full-time activity or not, they commented that they were deterred somewhat by the lack of a structured career path and opportunities for career progression within the humanitarian environment. As these general health delegates stated:

“Limited missions offered from Red Cross in nutrition and community health.” (G39)

“Would like to do more missions but you cannot be guaranteed jobs which is quite difficult.” (G57)

A third of the general health delegates believed strongly in the principles and value of humanitarian work and that they felt full-time humanitarian engagement was for them:

“It is time well spent for humanitarian aid and at the same time to serve at large community instead of saving one or two persons per day in an advanced hospital.” (G5)

“Actually under indefinite contract, I only dedicate my time to this career.” (G14)

Having the choice and flexibility to accept or decline missions was seen by the majority of general health delegates as a positive factor in both full-time and long-term engagement in humanitarian work. They also responded positively about having the ability to choose missions that suited them, as well as the flexibility to undertake missions when their personal situation allowed. Being able to have breaks away from the field environment and then be able to re-enter the field when they felt the time and choice of missions was appropriate to their situation, provided the flexibility required and the professional stimulation they would otherwise not get within their professional environment at home. As some general health delegates commented:

“I have considered this as I find the work context extremely stimulating. I think it's good to have a balance of work in Australia - this is mostly motivated by connecting with family and other networks.” (G33)

“I see it as an experience in my profession what I do not gain at home. It is a combination of different issues why I am working in the humanitarian field.” (G6)

However some general health delegates felt they were unable to pursue humanitarian work as a long-term career because of the difficulties of getting time away from their employment in their home country, being able to maintain their career advancement opportunities at home, as well as ongoing financial commitments. These issues were further compounded by the fact that these general health delegates felt that the humanitarian business was poorly remunerated, lacked career prospects and was, overall, a stressful and unhealthy environment to be in long-term, as these responses highlight:

“Unhealthy working environment in general, too much stress and impossibility of concealing private and personal life with work.” (G20)

“Time away from family little or no career advancement opportunities within organisations and the loss of career advancement opportunities at home.” (G36)

“Too erratic and too poorly remunerated.” (G45)

6.1.5 Staying Current with Issues and Challenges within the Humanitarian Environment

This section explores the ability of experienced and general health delegates to maintain a level of currency with the issues and challenges in the humanitarian environment. The two sample groups were asked if they accessed some form of peer-reviewed journals during periods when not on mission. This question looked to explore what types of information resources they used and what methods they used to access these resources. Additionally it looked at the ability of health delegates to maintain a level of professional knowledge currency.

6.1.5.1 Experienced Health Delegates’ Ability to Stay Current

Nearly all of the experienced health delegates interviewed expressed difficulties in staying abreast of current issues within the humanitarian environment. Although they attempted to stay current they were not always successful:

“I think I haven’t been as much, as current as I would like to be partly because there’s all the different specialities and then when I’ve been doing different jobs each time I need to go on the Internet and search and update and what’s the latest that’s happening... But I would say that if I’m honest I probably just carry on based on my own experience rather than I’m looking at the, you know what research has been done.” (E1)

“Not always, I think sometimes you feel quite isolated, particularly on the missions where you don’t have access to a lot of resources. It is quite an isolating feeling and knowing, knowing where to actually find those resources I find hard sometimes.” (E3)

A third of the experienced health delegates mentioned that they accessed some form of peer-reviewed journal between missions. The experienced health delegates were asked if they had heard of or used open access journals. Only half of the respondents had heard of them. One experienced health delegate had used them but highlighted the difficulties in trying to stay abreast:

“I must say that when you come back you’ve got competing demands and I’ve got two jobs back home so you know I find that I’m a bit behind every time I come back home so I try to catch up again on you know on what, my life back home. What I’ve missed out yeah trying to get you know keep up with the journals in emergency and also midwifery at the same time as keeping abreast of developments in humanitarian aid is always a challenge but. You could spend your whole life reading really.” (E3)

6.1.5.2 General Health Delegates-Ability to Stay Current

By way of comparison, the majority (77%) of general health delegates said they were able to stay current whereas the vast majority of experienced health delegates (83%) said they could not stay abreast of the issues and challenges within the humanitarian environment. When questioned about their ability to stay current with issues and challenges within the field, of the general health delegates, 45 respondents said **Yes**, 13 said no, and one respondent did not answer this question. Of the 45 **Yes** respondents, 43 expanded on their answer. Those 43 respondents identified 77 different methods or options by which they stayed current and, following analysis, these were grouped into four general methods: informal mechanisms, professional mechanisms, Internet-based sites, and reading. Five responses did not fit into any of the four general methods. Only one general health delegate commented that although they tried to keep their knowledge updated it was not enough:

“Yes but it is not enough, despite efforts of readings and communication.” (G10)

Method 1: Informal Mechanisms

Informal mechanisms for the purpose of this research are defined as activities associated with immersion in the humanitarian environment, such as contact with colleagues, being in the field on mission and listening to general media sources. Just under half of these general health delegates identified being on a humanitarian mission, talking with colleagues in the field, and listening to a range of media reports as their primary source of staying abreast of the issues and challenges within the humanitarian environment. As one general health delegate commented when asked how they stayed current:

“Only by exposure during missions. All environments are different.” (G41)

Method 2: Professional Mechanisms

Training courses, conferences, and or seminars were mentioned as ways of staying current. This method was identified by only a small number of respondents. Of the courses mentioned, specific Red Cross courses accounted for only three of the 12 courses stated. Two of the courses were on-line training courses. These general health delegates stated that they used other methods (non-specific) to augment their ability to stay current. For example:

“Regular periods of study.” (G28)

“I’m constantly studying with the team the alternatives and new challenges in our field of work.” (G32)

Method 3: Internet-based sites

Use of Web-based activities was a theme suggested by the following terms appearing in general health delegates’ written explanations: internet, on-line, website, or data-bases. Only two general health delegates mentioned on-line professional networks as a source of information and knowledge updates. Overall, amongst the 43 general health delegates, the use of the ICRC (7%) and IFRC (2%) websites as a source for staying current was extremely limited. Specific websites utilised by the health delegates

included WHO, Medecins Du Monde, Irin News, the International Crisis Group, and the Sphere Project.

Method 4: Types of Reading Materials

Less than a quarter of respondents identified reading as a mechanism to maintain currency in the field of humanitarian aid. Specific reading materials included published papers and articles, key publications from organisations working in the public health field, and new guidelines and protocols for remaining current. Only one out of the 43 general health delegates identified e-publications as a knowledge source.

The vague nature of the term *reading* in the written responses from respondents could well mean a great variety of mechanisms ranging from newspapers, media websites and or peer-reviewed published papers. The comments below help highlight the vagaries of some responses and the inherent difficulties in analysis.

“Reading, Internet.” (G52)

“Consistently, reading and follow-up. Speaking with other colleagues.” (G35)

This may well be a limitation of the research and a more specific question seeking more accurately-identified methods or resources used to maintain a level of currency would have yielded a more complete picture of tools used by health delegates.

General Health Delegates Not Able to Stay Current

Of the 13 general health delegates who said **No** to the question about staying current with the issues and challenges of humanitarian work, only four explained their answer. Those explanations identified being too busy with their job at home or blamed head office for failing to send appropriate information through. However, as one general health delegate commented, there seems to be a reluctance to embrace change:

“Buzz words are changing. The issues behind do hardly change. Humanitarian work to intellectualise more and more - it is done in offices, on PCs, for the careers of the humanitarian workers. Field work, common sense is left behind. A questionable

development that I do not want to take part in. However, I observe that I fall behind the buzz words in the headquarters.” (G31)

The Use of Peer-Reviewed Journals

The use of peer-reviewed journals as a mechanism to access new research and to stay abreast of issues and challenges within one’s own professional field of health practice, is a necessary method to ensure benchmarks of accepted practice are being met. Experienced health delegates were asked if they were aware of and used open access journals. The general health delegates were asked if they accessed some form of peer-reviewed publication when not on mission. Both sample groups were then asked if it would be useful to have these types of publications freely and easily available.

A small portion of experienced health delegates had heard about open access journals but only one actively used them.

Half of the general health delegates stated they accessed peer-reviewed journals between missions whilst the other half did not. Of the 26 general health delegates who did access them and expanded on their answer, less than half actually used peer-reviewed journals. The majority of general health delegates stated they accessed a variety of publications through humanitarian websites, health specific websites and Red Cross websites. One general health delegate commented:

“Sort of. I read the Red Cross publication but that’s about all” (G8).

These general health delegates identified specific websites such as ALNAP, the Humanitarian Practitioner Network (HPN), the Humanitarian Policy Group (HPG), the Emergency Nutrition Network (ENN), and the Overseas Development Institute (ODI). These sites are free, have a variety of easily downloadable knowledge-based resources and cover a wide range of humanitarian activities.

Of the 28 general health delegates who stated they did not read any journals when not on mission, only four gave an explanation for their answer. They said that although they did not read journals between missions they did access Red Cross websites or read Red Cross publications of some form.

Both experienced and general health delegates were asked if it would be beneficial to have these types of publications available between missions. All six experienced health delegates agreed positively but some identified the need for assistance in locating such information.

“Yes that would be great. It would be good if, if you could even just be given a site where they were listed. I mean I don’t expect people would kind of hand you a list of everything but just a site where it was available would be very useful.” (E2)

“Yes definitely I would really like that yes. Cause as a nurse it’s, you know clinical nursing is all evidence based in midwifery so it’s very nice that you can just go online and access that but I haven’t done that for humanitarian type subjects at all yeah. Yeah I have no idea about the resources available to actually look at that.” (E1)

Fifty six general health delegates answered this question with the substantial majority saying they would like such publications between missions. A small portion of general health delegates did not feel it would be beneficial to them.

Three broad reasons were identified by general health delegates who said they would like access to publications such as peer-reviewed journals between missions. First, some said it would help keep them updated with issues within the humanitarian environment and their own area of expertise:

“Absolutely. Would greatly help keep in touch with issues... .” (G19)

Second, others wanted access to these types of publications during their missions, not just between missions because peer-reviewed publications would help as a useful operational resource particularly—as mentioned by some general health delegates—if the publications gave access to a wider variety of topics and more specialised areas of interest.

Third, general health delegates said access to these types of publications would help reduce the amount of time searching for information. As one general health delegate stated:

“I don't have time to source them so if they were made available I would certainly have a look at these.” (G8)

Overall, the responses highlighted the benefit that the general health delegates felt they would gain if they were able to access a broad range of humanitarian related topics as well as specialised areas pertinent to their own area of expertise or interest. The ability to be able to continue their professional development and be updated on the issues and challenges within the humanitarian environment was seen as important, as was the ability to have more constant on-demand access to appropriate peer-reviewed publications for the purpose of maintaining their knowledge of humanitarian practice through continued professional development.

Of the seven general health delegates who did not see any benefit in having access to publications such as peer-reviewed journals between missions, several said they already had such access:

“I already have access to these through my own university channels.” (G48)

Others felt that, when not on mission, their priority was to spend time with family and friends, and that it was important to step back and disengage from the humanitarian environment. As one general health delegate responded:

“I mean, it would be beneficial, but realistically when I'm home it's when I take a step back, relax a little, do some simple work, catch up with friends and family more.” (G13)

It is clear from the results of the experienced and general health delegates groups that a formalised and structured approach to maintaining currency around the issues and challenges in humanitarian environments is non-regulatory and self-directed. Although the majority of general health delegates stated they were able to stay current with the issues and challenges within the humanitarian environment, the fact that there is no requirement or measure of clinical competence or currency, highlights a fractured and piecemeal approach to professional humanitarian health practice. The experienced health delegates overwhelmingly identified the inability to stay abreast of the issues and challenges within the humanitarian environment. This may be due to having a

wider cross-section of mission experiences as well as types of roles undertaken. The more missions you undertake, the greater the chance you are placed into a position where your skills and experience are not suitable or lacking. Another factor here might be the amount of time spent between missions. There seems to be a greater understanding of the realities of working in the field and the need to have separation from the humanitarian environment when at home.

6.1.6 Availability, Access and Use of Knowledge Resources

This section looks at the characteristics surrounding access, use and availability of appropriate sources of reference material. Both experienced and general health delegates were asked the following three questions:

1. In your experience as a humanitarian aid worker have you had access to all the appropriate reference material you have required during your mission?
2. What reference material has been made available?
3. Do you routinely take reference material with you on mission?

Fifty six general health delegates and six experienced health delegates answered these questions.

Experienced Health Delegates

Five of the six experienced health delegates resoundingly stated that they had no access to appropriate reference material on mission. Two respondents expanded their answer and acknowledged that the Internet had helped to improve information access although as one of the experienced health delegates commented:

“And now that you can access stuff online it’s changed things a lot. It obviously depends though, you haven’t got Internet access when you’re out in so many places and I think that it would be great just to have all the information you know together and I guess for me I already do, if I’m going somewhere I will go online and I will look and I will research and I’ll start downloading stuff and panic.” (E1)

As one experienced health delegate recounted their experience regarding a mission in Darfur, Sudan:

“I didn’t have the resources I needed or the knowledge needed to actually review that document and when I asked for the right resources it just took forever to come through the mail and the lines of communication were quite difficult. When you’re in the field you’re used to that, you’re used to not hearing from Geneva for you know two weeks after you’ve asked them a question or whatever but it makes it really hard to do your job and certainly I felt I didn’t have the resources in the field to be able to properly do that task that I was sent to do.” (E3)

One experienced health delegate mentioned that although they did in fact have some electronic reference material given to them through participation in a variety of courses they were not kept updated with the relevant changes in those documents. A respondent commented that the procurement of appropriate reference material involved either a fight for it or knowing someone who could access it. Their comment was:

“I think no or you had to fight for or to order or to ask somebody you know to get things if you knew what was available and yes you have to get an idea where you can find it but then you had to find it or to order somewhere and ahm. Yes I mean even now you don’t know what is available, again I always knew book editions and so on. You don’t permanently look into the new editions what is coming out and so on so I’m not updated.” (E6)

Additionally, experienced health delegates claimed they found it hard to access reference material in the field because it would go missing. As one experienced health delegate stated:

“People take them and then they disappear you know in terms of hard copies so it’s almost that you know and people will take them away with them and not leave them you know that people wants that material and it’s very frustrating to us when you know a whole lot arrived and they’ve all disappeared already you know into the, into the ether.” (E1)

A common complaint from the experienced health delegates was that there was a significant lack of reference resources in the field (Table 23).

“The Hospital for War Wounded, the ICRC publications are usually there but, and if it’s a specialised mission where we’re doing TB for instance or malaria or something then they will have resources on that but otherwise generally there’s not a lot.” (E2)

“So the only information resources that I tend to get when I’m on mission are from previous delegates that have either written reports, have statistics.” (E3)

“I’ve found that I’ve actually needed things more has been in remoter, in the field areas. So when I was asked to go and set up this feeding centre, I was just very fortunate because I knew zilch about it, I was very fortunate that (NAME DELETED BY RESEARCHER) who wrote the bible on it for the ICRC was there, he came with me and helped me do that for the first two weeks which was wonderful because really I had a hand, and he photocopied off some pages for me. Now it’s not really good enough.” (E4)

General Health Delegates

Of the general health delegates 56 respondents answered this question. Only eight general health delegates stated that they had access to all the information resources needed on mission. The largest majority identified that they had access to “**some but not all**” of the necessary knowledge based resources.

The majority of general health delegates explained that they were aware of the limitations and availability of appropriate information and reference resources at the field level. One respondent highlighted information requirements as being subject to the health delegates’ knowledge of what was required in the field:

“IFRC is particularly good at providing resource kits on line and memory stick prior to missions. Sometimes you need to know what to ask for.” (G60)

Table 23 outlines the reference material general health delegates have found on mission.

Table 23: A Range of Available Reference Resources Found on Mission

References	% (n)
Non-Specific Reference Texts	19.64% (n=11)
ICRC Publications	14.28% (n=8)
WHO Publications	14.28% (n=8)
MSF Publications	14.28% (n=8)
Protocols and Guidelines	8.92% (n=5)
ICRC Database	5.35% (n=3)
Sphere Guidelines	5.35% (n=3)
Journals	5.35% (n=3)
IFRC Publications	3.57% (n=2)
RED R Publications	1.78% (n=1)
Reports	1.78% (n=1)
Health Related Templates	1.78% (n=1)
Electronic Resources	1.78% (n=1)
Information CDs	1.78% (n=1)

The findings clearly show that the general health delegates are aware that a wide range of information resources such as appropriate documents, clinical guidelines and policies, lessons learned documents, as well as hard copies of reference texts were often unavailable or difficult to access. The majority of general health delegates recognised that there was no standardised library of reference resources available on mission. Additionally, general health delegates acknowledged that peer-reviewed journals were generally not available on mission. The cost of these journals was noted by some general health delegates as a limitation, either for the organisation itself or for the individual. Some general health delegates acknowledged that accessing information via the Internet continued to be problematic due to limited access, speed, and availability. The use of the ICRC health unit database was also singled out as being at times problematic. As several general health delegates note:

“There are some articles on the database. I really think this is lacking. The lessons learnt from past health projects haven't been documented, there aren't good articles published, the resources aren't really compiled. Even if there are protocols, the intellectual basis for them aren't available, and as such it is hard to prove efficacy of our interventions. There isn't a basis for analysis.” (G13)

“The Health Unit Database doesn't have all required references and is not regularly updated.” (G9)

Another limitation identified by various general health delegates was not knowing what information was available and where it could be resourced in the field. Several of the general health delegates identified that having information available was ‘context specific’, such as the example given by one respondent:

“Sometimes it is impossible because the place is a war environment.” (G32)

Experienced and General Health Delegates Sourcing Their Own Resources

All the experienced and the majority of general health delegates sourced and downloaded their own reference resources prior to going on mission. The experienced health delegates identified the most common reference materials as predominantly public or community health resources, teaching resources, Sphere guidelines and various types of templates. As one experienced health delegate commented:

“Whatever was available I just downloaded and then I knew what I had. Doesn't mean that I use it but I knew in case I would need it I would have access to them.” (E6)

From the general health delegates, 95 types of resources were identified by 43 respondents. Non-specific text books were the most frequently cited reference resource with texts relating to general medicine, anaesthetics, epidemiology and mental health the next most commonly identified reference resource. Given the limitations that all health delegates (experienced and general health delegates) face in terms of weight and luggage allowance during travel to the mission location, it suggests the importance that the majority of health delegates place on having available appropriate reference resources. The use of the more traditional hard text books may also indicate that these may not be available in an electronic form or that the cost to purchase the text in this form is too expensive.

Publications from ICRC, WHO and MSF were also frequently identified as a commonly taken resource. About half of all material identified as taken by health delegates on mission were guidelines. The most common reference guidelines were from MSF, ICRC, Sphere and various public health related resources. Other cited

resources included nutrition guidelines and assorted other guidelines from WHO, IFRC and various UN agencies. MSF provides free online access through their website to nine books in a digital format. These are also available in hard copy to purchase. The nine downloadable texts are in English, French and Spanish.

The ICRC guidelines are also easily downloadable from the ICRC website and range from topics on international humanitarian law to management of war wound injuries. Given the perceived influence of Sphere in the humanitarian sector, it was surprising to this researcher that the Sphere guidelines were mentioned by only 8 of the 43 general health delegates. Once again, this reference source is easily downloaded from Sphere's website in English (including a Braille version) and 20 other languages. Some of the general health delegates mentioned that they liked to take journal articles and manuals. The term *manual* is often used as an interchangeable term for guidelines but in this present research the term is considered as a separate item.

Information and reference resources appropriated from previous missions was identified by over a quarter of health delegates (experienced and general health delegates) as a good method of collecting suitable and valuable knowledge-based resources. Materials from preceding missions including previous reports, project management material, operational templates, and other assorted types of documents were identified as useful resources.

6.1.7 Primary Decision-Making Processes of Experienced and General Health Delegates

This section looks what processes experienced and general health delegates used when making decisions in the field. Both sample groups were asked, When making decisions in the field what is their primary methodology? Is it from their own experience or from peer-reviewed reference sources? All six experienced health delegates answered this question and most (52 of 59) general health delegates responded.

Of the experienced health delegates, half stated that they used only their personal experience to make decisions while the remaining half said they used a combination of experience and appropriate peer-reviewed reference material. Interestingly, only one experienced health delegate identified using local knowledge as a primary

information source when making decisions. A third of experienced health delegates who used their own experience as a primary decision-making process expanded on their answer by commenting:

“It’s all my professional experience I would say...Definitely I don’t look at the evidence based approach at all. It’s very interesting that you’re raising that because when I look in my own, in my clinical, in the clinical sphere it’s evidence based but in terms of public health I would say that it hasn’t been.” (E1)

“It’s probably mostly based on my experience because as I say I haven’t, I probably haven’t accessed that much in the line of you know research in the humanitarian field.” (E2)

However a small portion of experienced health delegates felt that the use of peer-reviewed reference material as a primary method for decision making was not the sole method. Rather, it was a combination of experience and using those reference tools that best fit the situation.

“It’s a combination plus I would also add in there its local knowledge. You know so your experience from other places plus your education around that issue in conjunction with the local input.” (E4)

Of the general health delegates just over half used their own experience as their primary decision-making process, with some of the general health delegates (10) using an evidenced-based approach, while some (12) used a combination of the two approaches.

Of those general health delegates who used their own experience as their primary decision-making method two comments are worth sharing here as they help highlight attitudes towards using evidence based approaches:

“I have had many years in the field and have covered a lot of situations which is far better experience than a text book health delegate just out of uni.” (G57)

“Access to the latter is not part of daily life. Decisions normally need to be either directly needs-based, or quick and intuitive, or affected by redline (other) overshadowing public health priorities.” (G13)

One general health delegate who used an evidence based approach to decision making also highlighted the difficulties when faced with having limited resources available.

6.2 Resources Identified as Part of a Portable Reference Tool

The last section of questions asked all health delegates (experienced and general health delegates) whether they would use a portable reference library and what types of resources they would like as part of that tool. All six experienced health delegates stated they would use appropriate peer-reviewed reference material in their decision-making processes if available. A third of experienced health delegates identified the use of the Internet on mission as being both time consuming and frustrating. Some experienced health delegates stated that they just gave up looking for the appropriate information because it was too difficult or that although they had their own portable set of reference material, it was at times hard to navigate due to not being well-organised.

All experienced health delegates embraced and supported the concept of better access to an appropriate, referenced, knowledge-based resource tool. The comments below highlight the enthusiasm health delegates expressed for having access to appropriate reference resources to improve their ability to practice:

“Yes I would you know I think it would be really good because sometimes when you have managers that have no idea what your program is about it would be really to be able to use those materials to say this is what you know community, this is what community health is about and this is what we do because certainly in Haiti now the senior managers have no idea what health is about, community health.” (E1)

“Yes totally. I think in a way I’ve tried to do that myself and I haven’t probably done it very well but I’ve tried to create something portable that I can take with me. Like I do always take a hard drive with me on mission of tools that I have but they’re not organised in a very systematic way.” (E3)

The experienced health delegates identified a wide range of material and subject matter encompassing both common areas of needs as well as material identified by each health delegate representing their own area of expertise as summarised in Table 24 (Chapter 7). A range of operational templates such as MOUs, assessment methodologies, reporting formats and a range of health and hospital forms were identified by four respondents as items that should be available in a Portable Reference Tool (PRT). Lessons Learned Documentation was identified by a third of experienced health delegates as also being of value particularly if it was able to be accessed through a PRT.

Two-thirds of experienced health delegates identified general health guidelines as being a necessary part of a PRT. The Sphere guidelines and ICRC guidelines were mentioned by a third of experienced health delegates as being items necessary in any available reference resource. Some experienced health delegates mentioned general health guidelines from the IFRC, OXFAM, and WHO, the Participatory Hygiene and Sanitation Transformation (PHAST), Mother and Child Health guidelines, and guidelines for community health. The ICRC, IFRC, OXFAM, and WHO have a wide and varied set of different health guidelines.

E-books, suggested by half of the experienced health delegates as being a valuable inclusion in a PRT, included *Hygiene Promotion, Refugee and Internally Displaced Populations* and *Where there is no Doctor*.

The largest common resource identified by the majority of experienced health delegates was a variety of health-related training resources for teaching and health promotion tools for use with local populations. Pictures or short video presentations were suggested as was a list of appropriate Web addresses where educational or reference material could be obtained. A similar theme resonated with the general health delegates acknowledging they would use such a tool. High value was given to inclusion of a library of document templates, assessment methodologies, various types of clinical forms, and official documents such as memorandums of understanding.

“Absolutely necessary - actually everybody creates his own documents or templates and assessment forms.” (G2)

“I take stuff that I have used on other missions so having this sort of material would be really beneficial and time saving.” (G8)

“Really yes! For example we tried to implement medical files, and observation charts in our work here, had to look online for a long time on google to find something, which is probably copyrighted.” (G13)

“This is only my second mission with ICRC and I am amazed that this material is not already available. I am used to standardised templates from my previous NGO.” (G16)

“Yes, this would be useful. I have collated some of my own over the years and I take these on missions.” (G34)

General health delegates were further asked if there were any other types of documents or reference material they would like to have available in a portable reference library? The majority of respondents (34) answered **Yes** with only a third (17) answering **No** (eight respondents did not answer the question). The reference source most frequently identified by those who said **Yes** was journals, followed by training materials. In addition general health delegates said it would be useful to have a set of standardised education tools in a digital format.

Finally, both experienced and general health delegates were asked if they had any further comments on the purpose of the present research. The majority of experienced health delegates felt positive about the idea of having their own portable reference resource library and commented:

“Well I think I’d like to have it now you know so that I mean I’m on mission now then there will be something I can use between missions to look and so that in between missions you can be reading materials and just getting yourself up to date you know with approaches and I think it’s more likely that you’re going to use it before missions to just get yourself up to scratch and what’s going on and to get your mind flowing in the direction of the type of health programs you’re likely to be involved in.” (E1)

“I think it’s an untapped resource I think. Really I’m excited about having something there to take with you in the field that would equip you to do just about anything... You’ll always come across some situation that you need to get some information about

before you actually address it. I think this is a fantastic idea to actually aid or give aid workers in being able to tackle those situations so I'm excited about that. I want to use it for my next mission so you need to hurry up and do it." (E3)

One experienced health delegate mentioned the need for psychological support material and conflict resolution techniques. The experienced health delegate felt that psychological support was often lacking for humanitarian workers in general and was of the view that if Internet access was not available then material on a CD or the like would be useful to have in the field environment.

Among the general health delegates this final question did not elicit common themes but, rather, 30 expanded points that were a combination of statements and opinions. Those general health delegates who commented on the use of technology in the field or of being able to have reference resources in an easily portable format, had a different idea based on their own experiences in the field. Considering the diversity of health roles, the number of functioning locations, different cultures, diverse mission contexts, ongoing conflict or unfolding natural disasters in some locations, this was to be expected. Twice the researcher was told by respondents: "Good luck". A selection of written comments below outline various limitations of accessing reference sources in the field as well as general support for improved access to reliable and accessible reference resources:

"I fully support any capacity Red Cross has to increase delegate's link to standards, resources, etc. based on evidence. The responsibility rests with us as delegates to ensure we are operating in a professional manner, including being in line with the evidence, however, given the diverse nature of roles, the challenging contexts and for many of us, the fact that we are already keeping up to date in our field in Australia, I think all Red Cross can do to support us any this area will be incredibly valuable and help us to provide a better service." (G33)

"Internet resources/links are not viable when working overseas - limited/slow email connection, disruption to power etc. Require information on flashcard/zip drive to be taken with the delegate. Tap into local societies for Red Cross also for translated materials." (G39)

Side Outcomes

Although not included in the research questions for this study, both experienced and general health delegates identified digital leisure resources as something they would like as part of a Portable Reference Tool. A third of experienced health delegates identified electronic resources for leisure as useful for the PRT. A range of music, movies and e-books were identified as useful support strategies for health delegates whilst on mission. Having leisure activities with a variety of resources for quality downtime and relaxation was seen as important by the experienced health delegates. Access to these types of resources is common place in today's home environments. It only makes sense that these types of resources are available in remote and stressful environments.

When general health delegates were given further opportunity to identify other types of digital material that they would like to have access to whilst on mission, professional or otherwise, their responses predominantly revolved around items for use in their downtime. Material such as e-books, music, movies and the need to de-stress and relax during missions accounted for 42 responses. A selection of general health delegate responses highlighted the importance they place on being able to have quality relaxation time and the dual purpose a digital reference resource could serve in providing opportunities for entertainment and leisure.

“E-books, music, maps, movies...always depending on the mission and the context. i.e.: Not the same being 1 year isolated in a remote mission than 1 year in Nairobi or Dakar.”
(G20)

“E Books; music and movies. Often delegates are in places with little recreation and it is just as important to have down time. Official computers rarely allow you to access these recreational applications.” (G46)

6.3 Summary

This chapter presented the qualitative data gleaned from 21 headquarter staff, six experienced health delegates and 59 general health delegates. A summary of themes was presented from the three sample groups. The next chapter uses these findings to

identify and develop appropriate resources for a portable reference tool that could be used by health delegates on and in between missions.

Chapter 7: Portable Reference Tool

7.0 Introduction

This chapter presents the development of the Portable Reference Tool (PRT). The tool is designed and structured from the research findings of the 86 respondents who participated in this research project. The development of the PRT was reviewed by two experienced health delegates for functionality (portability, ease of navigation, accessibility), suitability (types of reference resources, websites), and usefulness (Would the PRT be used in decision-making processes?).

7.1 Knowledge Management Framework

The humanitarian community has started to understand that actionable information is able to drive better response and decision making in complex humanitarian environments (Knox Clarke & Darcy, 2014). Even so, these new initiatives still rely on practitioners having good connectivity to access and download appropriate resources whilst in the field. This present research has highlighted health delegates' views that they require the ability to access a wide variety of references and practice guidelines, sometimes outside the scope of their professional capacity. The PRT provides the link between what is widely available once connected to the Internet and what is available when deployed into complex environments where access to World Wide Web resources is either limited, extremely slow or non-existent. Health delegates need to be able to access all types of reference resources without reliance on Internet connectivity.

As highlighted in the literature review in Chapter 3, knowledge management as identified by Nonaka & Takeuchi (1995) and Wiig (2004), has moved past just maintaining sizeable repositories of data, best practice guidelines and other sources of information. These repositories of knowledge are one part of a knowledge management framework that provides the users with the ability to leverage information and make decisions. As Firestone and McElroy (2003) and Huggins and Izushi (2007) state it is how this information is applied that adds value to its use.

Rapid advances in technology have enhanced the capacity of organisations and individuals to not only access increasingly large volumes of data and information, but also provided users the ability to carry and access this information anywhere and anytime. Widespread access to mobile digital devices, social networks and digital applications has enhanced the ability of victims of natural disasters or violent conflict to provide real-time information to the world. This has greatly changed the way in which humanitarian action operates. To meet this challenge, the humanitarian community needs to understand and embrace knowledge management and decision-making processes within a complementary knowledge management framework.

Both knowledge management and decision-making processes become intertwined. The proposed modified OODA Loop is a structured systematic method that, when used in conjunction with the PRT, provides the health delegate with the theoretical tools and information resources necessary to improve the decision-making process in humanitarian crises. The four interlinked stages of the modified OODA Loop (Observe, Orientate, Decide, and Act) provide a framework in which data collection, interpretation and application of the information becomes contextually relevant, driven by participatory decision-making with local authorities, beneficiaries, and aid organisations.

The PRT provides a range of information resources at each stage of the decision-making process. Pre-deployment information allows the health delegate to understand the situation and context before arrival in-country or, if in the country, on the way to the crisis. The ability to access and use relevant evidence-based standards of practice, as well as the utilisation of standardised data collection tools, help provide a higher level of validity and soundness of action. Access to and use of these standards, along with a participatory decision-making process, provides the framework for appropriate volumes and types of aid to be given, enabling the act or action stage to be implemented.

The strength of this knowledge management framework is that it provides a continuous feedback mechanism in which decisions are viewed within the local context of the crisis by all stakeholders, and that programs are able to be developed or adjusted using available evidence based peer-reviewed standards of practice.

7.2 Technology Advancements

From the early stages of this present research the design component of the PRT was centred on the use of a small, easily transportable hard drive with appropriate software to run a variety of programs to access a multitude of peer-reviewed reference resources. However, with the rapid evolution of mobile communication technology, portable computing and data storage devices, the design of the PRT must evolve to encompass technological advancements. According to Cisco (2015) global mobile connected devices numbered 7.4 billion in 2014, an increase in 500 million devices from 2013. The majority of this growth (88%) was in the uptake of smartphones. Cisco has forecast the number of mobile connected devices to reach 11.5 billion by 2019 (p.3).

The uptake of mobile communication devices and the integration of this technology into portable computing tools have fundamentally changed the way in which we interact and communicate on a global scale. Accessing real-time flows in information for personal and professional use, facilitating social networking and the integration of digital multimedia platforms such as the ability to listen to music, watch movies, take and share photos or movies has changed the way in which we use and access information. As highlighted by Bengtsson, Lu, Thorson, Garfield and von Schreeb (2011), during the Haiti earthquake the use of mobile communications changed the way in which we can interact in a humanitarian crisis. People affected by the disaster used text messaging and social networking to call for aid, and volunteers thousands of kilometres away from the disaster used mobile phone data to help track population movements and create a humanitarian needs map.

The continued development and deployment of new information and communications technology in complex and emergency humanitarian environments has provided innovative ways in which beneficiaries can be better accessed and supported (Humanitarianism in the Network Age, 2012; Google Crisis Response, n.d; Ziemk, 2012). Meier and Leaning (2011) showed that mobile communications technology can be limited by the reliability of local infrastructure such as power and connectivity, as well as restrictions on access and use for political purposes, but mobile communication devices are ubiquitous, easily accessed and user friendly.

Nevertheless, as Chapter 3 highlighted, the use of varied data collection and reporting formats by humanitarian organisations is impacting on their ability to act. The culture surrounding information management, continuous professional development and the ability of humanitarian practitioners to access the types of information required to make informed and professionally appropriate decisions has been disjointed. This has started to be addressed with a variety of humanitarian-based information and data collection projects and websites coming online. Recent website developments such as MEDBOX, the UNHCR Twine Project, and OCHA's Humanitarian Data Exchange project have provided another source of online resources for use by humanitarian practitioners.

MEDBOX is an online library that, according to its website “collates the increasing number of professional guidelines, textbooks and practical documents on health action available online today and brings these into the hands of humanitarian aid workers: when they need it, where they need it” (www.medbox.org). MEDBOX provides reference resources across the gamut of humanitarian health related topics. These resources are free to download, constantly updated and can be rated by the user for their usefulness.

The UNHCR Twine Project provides a range of standardised data collection tools and application guidelines in public health, nutrition, food security, reproductive health, and water, sanitation and hygiene (WASH). Users are able to upload their results for analysis using a string of interchangeable indications, and this data is able to be accessed and utilised by other users. Twine also provides a system for reporting active disease outbreaks and results of nutrition surveys in refugee and displaced population settings (<http://twine.unhcr.org/app/index.php>). The Twine Project allows its users to collect, use, and upload their data as well as access other standardised data in over 17,580 published reports across 1,023 active locations (as of 28/11/15).

The OCHA Humanitarian Data Exchange (HDX) project aims to make easily available data that can be used and analysed through three core concepts:

- A repository to share data based on standardised software use
- Humanitarian datasets that can be compared across countries, analysed and results visualised

- That standards used for the collection and reporting of data use a common data language (<http://docs.hdx.rwlab.org/>).

The United Nations Office for the Coordination of Humanitarian Affairs' website *Reliefweb* is a digital information service for humanitarian workers. Current projects revolve around the “next generation of information tools for humanitarians” such as:

- Disaster tracker
- Content trends
- Interactive maps
- Humanitarian data exchange

Additionally there were a further 18 thematic topics including agriculture, climate change and environment, disaster management, droughts, earthquakes, education, floods, food and nutrition, gender, health, humanitarian financing, mine action, peacekeeping and peacebuilding, protection and human rights, recovery and reconstruction, safety and security, storms and WASH (<http://reliefweb.int/topic>).

7.3 The Portable Reference Tool Evaluation

Two experienced health delegates were recruited to evaluate the developed PRT. Both health delegates had considerable experience in humanitarian related contexts having completed 12 or more missions each. It was noted by both evaluators that the evaluation of the PRT in this non-field environment would not provide the time-pressure situations where you would have to search the PRT for appropriate reference resources. Both evaluators acknowledged the range of reference resources on the PRT was excellent and they were keen to use the resources. One evaluator commented that they had not previously seen or used some of the resources on the PRT and were surprised by the amount of reference resources available. Both evaluators did, however, comment on the lack of some operational templates such as reporting formats and clinical forms. Both evaluators acknowledged that they had a variety of these types of templates from previous missions. The provision and addition of the various types of templates is discussed further in Chapter 8.

The evaluators commented that the PRT would be a valuable addition in supporting health delegates in the field. Additionally both evaluators acknowledged they would use the PRT to support their decision-making processes with one evaluator observing that those decision-making processes would lead to a more evidence-based approach to program designs. The second evaluator stated having the PRT would mean they didn't have to keep reinventing the wheel. The evaluators' comments have been incorporated into the following sections.

7.4 The Choice for the Portable Reference Tool

When Red Cross health aid workers deploy to the field they are limited by the amount of luggage they are able to carry. As highlighted in the previous chapter the ability to carry appropriate reference resources as well as a range of entertainment options was identified as important for a health delegate's ability to both work and relax.

The development of smaller, powerful, portable computing devices has seen a move away from laptops to tablet devices. The recent addition of the iPad introduced in 2010 by Apple Inc. has revolutionised the way in which we can now interact and use digital content (Curley, 2012, p.105; Lapenta, 2012, p.214). A simple Google search for *tablets* reveals a plethora of computing devices from Samsung, Acer, Toshiba, Asus, and Microsoft⁹. These devices now compete with each other on popularity, functionality and portability, features introduced by Apple's iPad.

The use of a tablet device was chosen as the basic technological format for the PRT for several reasons. First, this new technology provides the user with the ability to store, retrieve, use, and disseminate large volumes of information. This can be done either directly from the tablet or accessing a portable hard drive. This information can be provided in a variety of formats such as documents, e-books, pictures and videos. Furthermore, the user has the ability to access international communication networks or connect wirelessly to available networks for Internet and communication access, if available in the country. The user also has the flexibility to use text messaging services, person-to-person calls, skype or real-time video chats.

⁹ Samsung, Acer, Toshiba, Asus and Microsof are all Registered Trademarks

Second, tablet devices are supported by a plethora of software applications that allow the user to personalise their device both as a professional tool and for entertainment requirements. Tablet software applications allow the user to “sync” their content to any other computing devices they may own and to store a variety of information in storage locations on the Internet, commonly referred to as “clouds”. Finally, a tablet device is extremely portable, considerably lighter than a laptop and provides access to the user’s reference resources or information without requiring Internet access.

To provide all the requirements health delegates have identified as part of a PRT, both Microsoft Surface Pro 2 and Apple’s iPad Air tablets were reviewed for their suitability. Both tablets had the overall technical specifications and inbuilt features to perform the requirements of a proposed PRT. It was initially a requirement that the PRT would have to be a device using Microsoft Windows technology due to the Red Cross use of Microsoft Word and Excel platforms, but with the release recently of Microsoft key programs Word, Excel, and Power Point in a fully functioning version for Apple devices, this was no longer a requirement.

The one limitation the iPad Air has over the Surface Pro 2 is the size of internal storage with 128GB against 512GB respectively (See Appendices 9 & 10). This limitation was overcome with the addition of a Seagate 1TB Wireless Plus mobile storage device. This not only increased the storage capacity but allows multi-user streaming. It allows for much larger files such as movies to be added, which increases the health delegates ability to have a broad range and volume of relaxation choices. The device is compatible with both Windows and Apple operating systems through USB3.0 or wireless access and is extremely portable and weighs in at only 478g. Connectivity of the iPad Air to the Wireless Plus device is through the free Seagate Media App for iPad (Wireless Hard Drives, 2016). One added benefit of the Wireless Plus mobile storage device is that it is able to create its own Wi-Fi network between users. This allows for other users to access documents, reference resources or any other type of material stored on the device. The device can be used to access material not on the iPad as well as downloading material from the iPad as a backup or to free up storage space.

The iPad Air also provides the user with the flexibility to either use the inbuilt touch screen keyboard or purchase a traditional keyboard that connects via blue tooth technology. Blue tooth keyboards can be integrated and used with iPad Air if the user prefers. The display is 9.7 inch and uses the new retina display for better picture quality. A full list of specifications for the iPad Air, Surface Pro, and the Wireless plus Mobile storage device can be found in Appendices 9, 10 and 11.

The iPad Air was selected for the proposed PRT because a wider range of software program applications, or apps, is available through the iTunes store. However it should be recognised that technology is rapidly evolving. Whilst the iPad Air was chosen for this research, development in portable computing devices and software applications will require ongoing evaluation of the benefits respective tablets are able to provide the user.

7.5 The Portable Reference Tool

The flexibility of the PRT is that content can be user driven. Health delegates are able to personalise the PRT into an organisational flow that suits their use. The iPad Air can be used as both a portable reference library as well as providing the health delegate with an entertainment system. Both evaluators liked the flexibility the iPad Air provided. One evaluator acknowledged they would have difficulty, however, in changing the way the iPad Air was organised as they didn't really have the skills or knowledge to do so. They further commented that they would not be able to download and place documents or reference resources into appropriate folders. The second evaluator commented they have an iPad already and were comfortable in changing the layout and placing any type of downloaded material where it needed to be placed.

The use of the iPad Air tablet provides the user with the flexibility and ability to carry and access a large variety of peer-reviewed reference resources independent of the Internet. The size and weight of the PRT also overcome the limitations of carrying hard copies of reference books or guidelines. Both evaluators commented that the combination of iPad Air and the 1TB Wireless Plus Mobile Storage device provided enough capacity for their digital requirements. One evaluator commented that they could always take a second portable hard drive as they were small.

The PRT also provides a mechanism for humanitarian organisations to provide a comprehensive standardised set and range of appropriate reference resources, if they so choose. This, however, is dependent on the organisations' ability to identify such resources. Table 24 highlights reference resources and document templates that experienced and general health delegates have identified as necessary as part of the PRT.

Table 24: Reference Material Experienced Health Delegates Identified for a Portable Reference Tool

ICRC Health Guidelines
ICRC Health Detention Guidelines
IFRC Health Guidelines
WHO Health Guidelines
OXFAM Health Guidelines and Hygiene Promotion resources
MSF Guidelines
Sphere Guidelines
Mother and Child Health Guidelines
Community Health Guidelines
Control of Communicable Diseases Resources
Specific book -Where there is No Doctor
Medical Ethics-Links and Bridges between IHL and Health
Evidence based articles on PHC or Other Health Programs
A range of peer-reviewed journal articles (no specific topics mentioned)
Examples of Good Practice from other ICRC programs
Program/Project guidelines
Public Health Prevention activities
Reference resources outside the general scope of health practice such as engineering
Templates such as:
• MOUs
• Assessment Methodology
• Reporting Formats
• Clinical Forms
Lessons Learned Documents
Job Descriptions
Staff Guidelines, Rules and Regulations
A variety of Maps

Deployment specific information either;

- Digital documents and resources
- Web links

YouTube clips on health promotion

Educational training material

Links to a range of humanitarian websites addresses

Digital Material for relaxation purposes

- E-books
 - Movies
 - TV shows
 - Music
-

Reference resources identified as necessary by the experienced and general health delegates were placed on the PRT (See Appendix 7). Templates such as Memorandums of Understanding (MOUs), reporting formats, clinical forms, job descriptions, staff guidelines, rules, and regulations are resources that need to be added by the respective organisations. This is an issue that will require consideration by the various Red Cross organisations, should they choose to adopt the PRT.

As this research has highlighted, no standardised reference resources are provided or made available to health delegates currently on mission or between missions. Although the majority of health delegates took their own material, either in a digital format or as a traditional hardcopy, both the experienced and general health delegates identified the need for a wider range of reference resources in portable format.

The headquarter staff groups identified the need to have available to health delegates appropriate reference resources as well as better support to field locations. The use of a digital storage and delivery system such as the iPad Air and Wireless Plus Mobile Storage device, as the PRT, provides the platform to meet these needs. It is able to provide both the overall reference resource requirements as well as the flexibility for each health delegate to personalise it to meet their professional and relaxation needs. Despite this, whilst the hardware is able to provide the platform, the information must be organised in a way that can be appropriately accessed and utilised.

Both experienced health delegate evaluators stated that the PRT met the portability requirements. Both commented that the iPad Air and Wireless Plus Mobile Storage device was small and light enough to carry. They both thought the addition of the Wireless Plus Mobile Storage device would be useful because the compact size allowed for an extensive amount of digital resources to be taken and carried. They also appreciated that up to five people could access the Wi-Fi enabled hard drive. As one evaluator commented, this meant they could share resources but not lose them.

7.5.1 Knowledge Taxonomies

There is no shortage of information and resources available for humanitarian practitioners. As Pellini and Jones (2011) state: “The explosion in the volume of information and knowledge available through information technology and especially through the Internet today has made it more urgent than ever to adopt systems, processes, and technology to organise this information” (p.vii). Knowledge taxonomies were used to create a systematic process for easy access and retrieval of necessary resources. A knowledge taxonomy can be described as a map that allows users to access or retrieve information through structured descriptions or names of the available content (Lambe, 2007; Pellini & Jones, 2011).

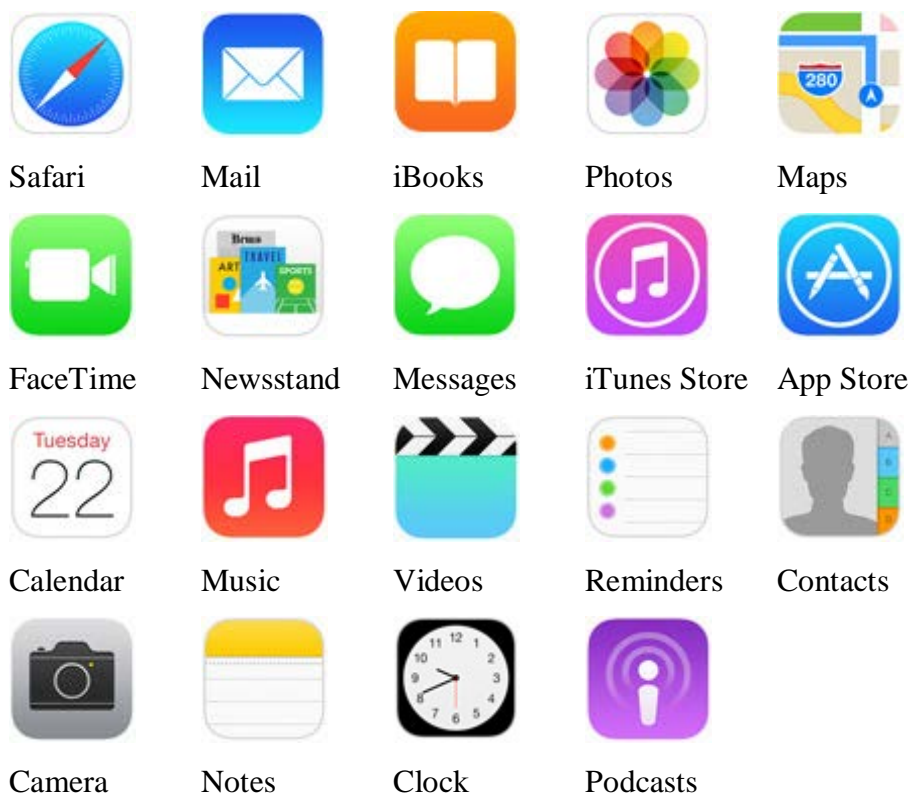
All software applications were chosen by the researcher, with decisions guided by the survey findings, for the purposes of the evaluation of the PRT. Where reference resources identified by all health delegates were generalised and non-specific (such as Mother and Child Health Guidelines or Community Health Guidelines) the researcher provided a range of resources from WHO, IFRC, MSF, MedBox, or other appropriate sites to meet these requirements. Similarly, the organisation of applications, websites, and reference material was decided by the researcher. The evaluation subsequently took into account the software applications, reference resources and the organisation of them for ease of access, appropriateness and usefulness.

All material placed on the iPad Air and on the Wireless Plus Mobile Storage device was placed in recognisable folders or applications to better identify the type of resource contained within it. Generic descriptions highlighted the common content of each folder. The use of various applications to store and retrieve different types of resources

was used to provide a consistent and clear organisational flow. These applications use both visual icons with launch images and a thematic content description.

7.6 Applications¹⁰

The iPad Air comes standard with 32 free built in apps (iPad Air, 2016). Each application available through Apple's app store is designed specifically for the iPad. Thirteen in-built or default apps were removed from the PRT as they did not meet any identified need of the respondents. Below are the free built in apps loaded onto the PRT.



All other programs downloaded onto the PRT were a combination of free and paid applications accessed through the Apple's iTunes store. Each application installed on the PRT provided the necessary software architecture to use and access the different types of resources identified by the experienced and general health delegates as being necessary for their operational needs. Where the data from the respondents was non-specific, applications and websites were chosen by the researcher to meet these

¹⁰ All applications are Registered Trademarks

identified needs. The flexibility of the PRT allows the health delegate to add further applications that may be specific to their operational role.

Both health delegates who evaluated the PRT felt all applications were of value although some applications (such as Global Emergency Overview, Humanitarian Kiosk, First Aid and the Merck manual) were unfamiliar. All applications were equally accessed and reviewed for applicability and usefulness. At the time of the evaluation both evaluators stated they could not think of any other applications that would be useful as part of the PRT.



7.6.1 Safari

Safari is the Internet launch icon. It opens to a separate page in which World Wide Web links can be organised to best suit the user's needs. As identified by the experienced and general health delegates there was a need to have various links to a range of humanitarian organisations websites. Internet addresses are able to be stored as favourites or as an icon on the opened Safari page. A combination of similar Web sites could also be stored by creating and labelling a specific folder. The PRT has four general categories with each category having a variety of corresponding links to humanitarian databases, United Nation's websites, humanitarian content specific websites and humanitarian organisations.

It was also acknowledged by both experienced and general health delegates that the use of the Internet could be slow, unreliable or non-existent whilst on mission. However the ability to access appropriate humanitarian websites and access a range of knowledge based resources was identified as something health delegates would like to have access to between missions. Some health delegates identified knowing where to find these types of resources as both problematic and time consuming.

Both health delegates who evaluated the PRT already accessed most of the websites on the PRT. However both evaluators identified several websites (Emergency Nutrition Network and the Assessment Capacities Project) they were unfamiliar with. Both websites were accessed and reviewed by the health delegates for useful reference

resources. Both health delegates commented that they thought they would be beneficial. One of the evaluating health delegates commented that they had to develop a nutrition program for victims of the Nepal earthquake and that the Emergency Nutrition Network reference resources would have been very useful.

Screen icons were used for eleven humanitarian-based websites and one open access peer-reviewed literature site. These 12 humanitarian-related web links provide a variety of different professional reference and information resources. The flexibility of the PRT allows the health delegate to add specific websites and information networks to meet their specific needs. The links placed onto the PRT are:

- MapAction Homepage
- Emergency Nutrition Network (ENN)
- Conflict and Health (Public Access Journal)
- CrisisMappers
- Humanitarian Accountability Partnership (HAP)
- The Assessment Capacities Project (ACAPS)
- InfoAid
- ICT4Peace
- Humanitarian Practice Network
- The Sphere Project
- Shelter Centre
- Disaster Assessment Portal

Whilst health delegates wanted links to humanitarian based information websites they did not identify or nominate specific websites. With this in mind, a wide range of websites were selected to help address the general needs as identified by all health delegates. This selection provides a good cross-section of professional reference resources, peer-reviewed journals, research articles and updates on issues and context-specific information within the humanitarian field of practice. Also a selection of humanitarian organisations' websites were added, as they also provide valuable reference resources, guidelines, various operating templates, lessons learned reviews, program analyses and updates on issues, changes, and challenges within the humanitarian field.

The flexibility of the PRT allows each user to store their favourite sites and place them in either folders, screen icons, or as a separate screen icon on the general screen pages. A user can also have these links in more than one place allowing them to be in a folder, as a separate screen icon and also on the general screen page as an icon. Separate screen icons were placed on the general screen pages for ease of access. These pages are Medbox, Twine Project, and Relief. They have very distinctive screen icons, are easy to find and provide a wide range of reference resources and general information. Placement of World Wide Web links and applications can be tailored to match the preferences of each user. Both evaluators commented that the general layout of the PRT was easy to navigate. One evaluator who already owned an iPad commented they would tailor some of the folders and screen icons to their own professional areas of practice.

7.6.2 Microsoft Office 365

One of the core attributes the PRT required was the ability to create, open and share documents using Microsoft Word, Excel and PowerPoint programs. Office 365 contains programs Word, Excel, PowerPoint, OneNote, Outlook, Publisher, and Access. Only Word, Excel, PowerPoint and Outlook function on the iPad Air but importantly these programs meet all identified core requirements. Costing varies for Office 365 depending on number of PCs, tablets, and smartphones the program is installed on, ranging from AU\$89 up to \$119¹¹ for an annual subscription fee (Microsoft Office, 2016). For the purpose of this research an annual subscription was purchased for AU\$119. This allowed for Office 365 to be used on 5PCs or Macs or 5 tablets with version upgrades included. Both evaluators commented that the cost of various software applications as well as the iPad Air and Wireless Plus Mobile Storage device may deter the various Red Cross organisations from providing such a tool. However both reviewers thought the cost of having such a tool to be able to access and use was well worth it.

7.6.3 PDF Reader Pro

PDF is a common file format for a range of documents. The PDF Reader Pro cost AU\$6.49 to install. It was selected because it allows the user to create new PDFs, annotate existing documents, and has a document manager that allows copying,

¹¹ All pricing in this chapter is based on DATE prices

cutting, pasting, and deleting of documents as well as being able to organise PDFs into appropriately named folders (PDF Reader Pro Edition, 2015). The PDF Reader Pro application meets the identified needs of health delegates and was used to store and organise a variety of assessment guidelines and templates, humanitarian magazines, a range of peer-reviewed journals and research articles. Other resources included humanitarian related reports and disaster related resources. All resources downloaded were freely available. The evaluators were divided on the need to create and annotate documents. One evaluator thought it would be useful both in the field and at home. They liked the idea that they could source and download a variety of reference type resources or peer-reviewed research and be able to highlight what was useful and what was not. The other evaluator didn't think they would use it.

7.6.4 PDF Pro

PDF pro is a free app. As with PDF Reader Pro it is able to view PDF files and sort content into identifiable folders. It also allows the users to colour tag both the PDF document and content folders for ease of subject identification. Colour cover art is also displayed for further ease of content identification. The visual format can either be viewed as a simple list or as a bookshelf. For ease of quickly identifying appropriate resources a bookshelf format was utilised. This program also opens the PDF document table of contents which is useful for access to appropriate information in a timely manner (PDF Reader, 2015). PDF Pro was used to store e-books, magazines and various other reference resources and operational guidelines from ICRC, IFRC, WHO, OCHA, UNHCR, MSF, OXFAM, and Sphere.. All resources downloaded were freely available. Both evaluators commented that the format was easy to navigate and that the labelled folders made for quick access to specific resources. They both thought PDF Pro was a useful application.

7.6.5 Applications that Provide Health Delegates with Deployment-specific Information

One of the identified needs expressed by health delegates was being able to get deployment-specific information either in a digital format or at least via accessing World Wide Web links. The applications Global Emergency Overview, Humanitarian Kiosk and Relief Central were identified as a means of addressing part of those needs. Whilst a range of specific deployment information is provided by the various Red

Cross organisations, these applications allow the health delegate to access and gather information that they identify as useful for the purpose of monitoring ongoing situations and to access information that holds professional interest for them when they are on and in between missions. The two evaluators both appreciated the Humanitarian Kiosk and Global Emergency applications for being able to provide situation reports, maps and operational updates. This was the first time they had seen or used these applications. The Relief Central application was also new to both reviewers although one reviewer had previously accessed the CDC Yellow Book for pre-departure health information via the Internet.

7.6.5.1 Global Emergency Overview

This free application provides a summary of both natural disasters and complex emergencies with country specific major highlights for the previous seven days as well as a longer narrative for protracted emergencies. It provides “easy access to more-in-depth sectoral analysis and baseline information” (Global Emergency Overview, 2015).

7.6.5.2 Humanitarian Kiosk

Another free application placed on the PRT was Humanitarian Kiosk developed by OCHA. This application also provides the health delegate with a range of fact sheets, maps, situation reports, operational briefs and humanitarian needs overviews from emergencies around the globe (Humanitarian Kiosk, 2015). Humanitarian Kiosk also allows for areas of interest to be automatically downloaded and synchronised to a user’s mobile device as a means of staying abreast of developments in a user’s particular area of interest. Reports are also available in a variety of languages.

7.6.5.3 Relief Central

This free application brings together information from The World Factbook from the CIA, CDC Health Information for International Travel, the Field Operations Guide from USAID, Medline Journals, and Relief news from the Red Cross, United Nations, CDC, FEMA and more (Relief Central, 2015). The value of this application for the PRT is that it provides a variety of resources at a single source. The World Factbook provides country-specific information on areas such as geography, people and culture, the economy, type of government and overall infrastructure. The CDC Yellow Book

provides the health delegate with health information regarding international travel. Relief News provides the health delegate with updated RSS news feeds from a range of humanitarian and emergency-related sites. Medline Journal provides the latest abstracts and citations and links to full-text articles from the following journals:

- American Journal of Disaster Medicine
- Bulletin of the World Health Organisation
- Disaster medicine and public health preparedness
- Disasters
- Journal of Hazardous Materials
- Prehospital and Disaster Medicine

This application also provides to the health delegate a simple mechanism to stay informed in developments and current research on and in between missions.

7.6.6 First Aid

This free application developed by the Australian Red Cross provides information to deal with common first aid situations. A range of topics provides the user with information, diagrams and videos to deal with emergency and life threatening situations. It provides to the health delegate a resource that can be used by non-health related personnel as well as an excellent teaching resource in the field. Having available types of teaching resources was identified by the majority of experienced health delegates to promote health related information to local populations. This application starts to build on those identified needs of the health delegates by providing a teaching resource for use with local populations on first aid health guidelines (First Aid by Australian Red Cross, 2015). The evaluators had not previously seen this application. One evaluator thought it would be useful as a training resource as they had had to provide this sort of training to local populations on a previous mission. The other evaluator thought it would be useful for all humanitarian aid workers to have access to, regardless of operational roles.

7.6.7 Merck Manual

This medical resource application cost AU\$49.99 to install. It is a comprehensive medical text and reference guide for the diagnosis and treatment of medical diseases and other medical disorders. It was selected because it remains one of the world's most

used medical text books (Merck Manual, 2015). The addition of this medical reference resource to the PRT provides the health delegates with a comprehensive clinical diagnostic and treatment tool whilst proving to be an up-to-date medical guideline and reference resource. Both evaluators liked this reference resource as it provided guidelines on medical problems they don't normally see as part of their normal roles. One evaluator commented they would definitely use this resource in the field. They further commented that they would most likely use this resource in their current job in Australia.

7.6.8 Dropbox

Dropbox is a free application and was added to the PRT as it provides the user with the ability and flexibility to access and share documents, photos and videos from any computing device that has Internet access. The application allows a user to place files from a home computer into the application which works both on a Windows or Apple operating system. The benefit of this application is that individuals or organisations can be linked to a delegate's own folders in a secure way, enabling those linked to the folders to share or provide updated files or documents that are too large to send via email. The library of material is entered either via the application on the computing device or by logging onto the website with a password. Once files have been uploaded onto a user's device they are able to be retrieved even if Internet access is not available. Free storage space of 2 gigabytes can be upgraded via a variety of payment plans (Dropbox, 2015). One evaluator commented that they used Dropbox on their last mission with the International Federation of the Red Cross and Red Crescent Societies and that it worked effectively. The second experienced health delegate evaluator already uses Dropbox for personal files. They thought it would be a good way of getting all their pre-mission material.

7.6.9 Podcasts

Podcasts is an application that is able to be used as a professional educational resource that allows the users to watch or listen to a wide variety of content recordings on humanitarian issues. The PRT has links to Podcasts from the ICRC, Centers for Disease Control and Prevention, Advanced Training Program on Humanitarian Action, and the Program on Humanitarian Policy and Conflict Resolution at Harvard University. These links allow the user to browse individual Podcasts and download

those that meet their requirements. Health delegates are able to browse a wide range of specific categories and subscribe to those Podcasts that meet both their professional requirements and relaxation needs. This type of resource contributes to the identified needs of health delegates by providing access to training resources as well as contributing to the health delegates' ability to stay abreast of any issues and challenges within the humanitarian environment. Users are able to download podcasts from the Internet and access them when offline. One of the evaluators commented that they were very keen to start accessing the humanitarian-specific podcasts. They further commented that they thought it would be a good way of staying up-to-date with some of the issues in humanitarian aid. The other evaluator who wasn't particularly interested in accessing the Podcasts claimed not to have the time.



Health delegates identified the need for a variety of digital material for relaxation. Although the addition of these applications does not facilitate the issue of decision-making processes that framed this research, it does, however, address the stated importance of stress-reducing activities for humanitarian health delegates. The PRT has the flexibility to incorporate these applications without impacting on the primary purpose of the PRT. The user is able to transfer their existing personal digital material onto the PRT or to the Wireless Plus Mobile Data Storage device. They can also purchase products directly from the iTunes store, movies, music or iBooks. The use of the Wireless Plus device provides the user with the ability to maintain a workable amount of data storage on the PRT whilst being able to carry an expanded and comprehensive digital library. For the purpose of the trial, only a small selection of music, movies and free e-books were chosen from the researcher's personal library and placed onto the trial PRT device.

The addition of these applications as part of the PRT was seen by both evaluators as necessary. Both remarked that they took a range of these types of material on every mission. They both felt that having easy access to leisure resources helped them deal with the stresses the different missions presented.

7.7 Summary

This chapter has provided an overview of how technology has developed and changed the way in which digital information can be stored, accessed and used. The development of the PRT with installed free and purchased software applications provides the health delegate with the ability to carry and access a broad range of peer-reviewed reference resources. These applications and resources were evaluated by two experienced health delegates. The next chapter discusses the themes and outcomes of this research. A series of recommendations are proposed along with the significance and limitations of the study.

Chapter 8: Discussion, Portable Reference Tool, Significance, Recommendations and Conclusion

8.0 Introduction

This chapter commences with a discussion of demographic profiles of the study's participants. The broader research findings are then discussed across the three survey groups of experienced health delegates, general health delegates and headquarter staff. The Portable Reference Tool evaluation is then discussed in terms of how it meets the needs of the health delegates to access appropriate peer-reviewed reference material that better supports their decision-making processes in the field. This is followed by a series of recommendations for humanitarian organisations and humanitarian workers. Further recommendations are also made regarding policy and practice of humanitarian health workers' obligations, as well as the need for further research. The significance of the study and limitations of the research are then discussed. The chapter finishes with a concluding statement.

8.1 Demographic Profiles of Participants

8.1.1 Age

Eighty nine percent of participants were at least 30 years or older with nearly three quarters (72%) of the participants over 40 years of age, suggesting that humanitarian health work has a flexibility of engagement but requires the time to attain relevant health qualifications and experience. Only one participant was aged under 30 years of age whilst nine participants were 60 years or older. This suggests that obtaining professional health qualifications and then acquiring the relevant clinical experience, are part of the necessary steps required as a health professional to augment one's primary knowledge base. This is further reinforced by the requirements of the Red Cross that health professionals have a certain level of relevant clinical experience before being accepted as a health delegate, but, providing these requirements are met, engagement in humanitarian work is not age-dependent.

8.1.2 Qualifications

Nearly 99% of participants had formal professional qualifications. Overall, medical doctors and nurses accounted for three quarters of all health-related qualifications.

Across the three survey groups headquarter staff had over three quarters of its respondents with health related degrees, whilst the general and experienced health delegates all had primary health-related qualifications. This was expected as the target group was health aid workers. Across the three survey groups the majority of participants (69.76%) had some form of postgraduate qualification in a health-related field. Of these qualifications the majority (93.32%) held either a master's degree or higher. However, when the experienced and general health delegates were asked to differentiate their postgraduate qualifications between general health-related and those specifically humanitarian-related only a small portion (10.60%) had a formal qualification in a humanitarian health-related field.

The fact that a health related master's degree or higher was attained in over 90% of postgraduate study undertaken by health delegates surveyed suggests that the participants are motivated to expand their knowledge base and skill set, whilst also understanding the value of evidence-based practice. That only a small portion (10.60%) of postgraduate qualifications were humanitarian-specific alludes to the principal focus of those health professionals surveyed towards their primary occupation. Several reasons may contribute to this. First, there is no professional academic qualification required to undertake humanitarian work. Second, the lack of humanitarian-related qualifications may also be in a large part due to the fact that there is no requirement to maintain humanitarian-related competencies. Third, as experienced and general health delegates have commented, there is a lack of a defined career pathway for those health delegates wanting to work in humanitarian aid on a full-time basis. Finally, as acknowledged by the experienced and general health delegates, time away from the humanitarian environment—and for some health delegates extended time between missions—may very well impact on their general motivation to devote both time and money to pursuing health-related humanitarian qualifications.

8.1.3 Humanitarian Related Experience

Experienced and General Health Delegates

The breakdown of types of missions shows a broad range of Red Cross experiences identified by the experienced and general health delegates. The spectrum of different humanitarian health roles identified by the surveyed groups emphasises well the

substantial diversity of health-related positions engaged by these professionals. The humanitarian aid experience gained by the health delegates through their work with the Red Cross has been further augmented by undertaking missions with other humanitarian aid organisations. This shows a willingness to undertake humanitarian work irrespective of the organisation itself and that movement between humanitarian organisations is common place. As health delegates stated, availability of positions, flexibility of engagement, and their own personal situations around current employment and family or wider social needs influence their ability to engage in humanitarian work. Having a range of different humanitarian organisations that they can work with helps to meet these criteria.

The findings show the experienced and general health delegates participating in this research predominantly favour working for the Red Cross movement. This may be in large part due to the variety of work the Red Cross movement undertakes and the various specialised roles available. Amongst the experienced and general health delegates, it was found that shorter term missions such as roles with an ERU or FACT provide health professionals aid work that delivers the flexibility of being able to do short-term emergency type missions whilst juggling job commitments at home. At the other end of the spectrum, longer term missions are also available in a variety of conflict and development settings such as Afghanistan, Iraq, South Sudan, and Syria (www.ifrc.org/, www.icrc.org/). The different operational roles within the various Red Cross movement organisations allow health delegates the flexibility of engagement that can be tailored around their personal and professional situation.

The experienced and general health delegates identified 67 different health related operational roles undertaken. Over two thirds (69%) of these health delegates had their initial operational role changed whilst on mission. This underscores the very nature of a health delegate's ongoing role: it is subject to the needs of the overall mission and requires a robust flexibility in being able to take on roles that may be outside their normal scope of practice.

The change of roles while on mission places health delegates in potentially challenging clinical and ethical positions that may be outside the scope of their professional practice. It should be recognised that for health professionals there is a degree of

professional overlap of skills. However, a registered nurse is not a midwife; a general surgeon is not an orthopaedic surgeon; nor is a general medical practitioner an anaesthetist. Some skills overlap but unless they have undertaken specific training these health professionals are only legally allowed to practice pursuant to their training qualifications within their own country.

Within Australia and other developed countries, there is a strict requirement for all health professionals to practice within the scope of their professional capacities (Good Medical Practice, 2013; AHPRA Regulating Australia's health practitioners in partnership with the National Boards, 2016). This scope of practice requires a currency of clinical experience as well as maintaining an ongoing commitment towards a continuous professional development program. Health professionals who fail to meet these requirements as part of their annual registration requirements may lose their ability to practice in their own countries. Herein lies the difficulty and ethical dilemma for health professionals who undertake humanitarian work either in emergency or in non-emergency humanitarian activities: there is no such registration requirement!

Headquarter Staff

Understanding headquarter staff experience in both their ongoing roles and broader humanitarian related experience was important for two reasons. First, in providing an understanding of health delegates' working environment and types of reference resources needed, and, second, to understand the working context in which attitudes and culture of knowledge management processes are practiced.

For the Red Cross headquarter staff interviewed as part of this research, the findings show that there is a significant difference between time spent within a headquarter staff role and time spent in field positions. Experience in headquarter positions ranged from two weeks up to 21 years. Further breakdown of data indicated that eight of the 21 headquarter respondents had six months or less in their current position and a further three respondents had 15 months or less. The ICRC respondents provided the most consistent level of headquarter experience with six out of seven respondents having at least two years' or more experience in their current role. Although the level of experience working in a headquarter role, across the broad surveyed group was relatively low, this was somewhat offset by their overall level of humanitarian

experience with the Red Cross and other humanitarian organisations. Only one respondent had less than 26 months of Red Cross experience. Of the remaining respondents, 17 had four or more years' experience with the Red Cross. This experience would suggest headquarter staff should have a broad understanding of how the Red Cross movement works in terms of:

- the variety of different environments health delegates work in
- the difficulties health delegates have in accessing knowledge-based resources
- quality and accessibility of Internet-based resources in the field
- access to hard copy reference material
- lack of standardised knowledge-based resources
- changing nature of health delegates roles and responsibilities.

8.2 Attitudes and Culture Towards Knowledge Management Practice of Headquarter Staff

The findings show that across the five surveyed headquarter staff groups, health delegates were not provided easy access to appropriate peer-reviewed reference material. This lack of access was equally divided between the resources given pre-deployment, access to reference resources whilst on mission, and a flow of appropriate information and material between missions. Apart from a range of mission specific material given to health delegates pre-deployment, there was no standardised reference material given in either digital or hard copy format. As already shown, two thirds of all health delegate roles changed when they arrived in the field. Whereas some of the mission-specific material may be applicable, role-specific material may no longer be appropriate or useful. A practical factor is that limitations on luggage impacted the health delegate's ability to carry large amounts of hard copied reference material (Overlack, 2005), but in today's digital world large amounts of easily available reference material can be loaded onto a device as small as a USB stick. This is identified by health delegates who source and carry their own sets of reference resources with them in a digital format to the field.

The issue here is that because there are no recognised and standardised sets of reference resources provided to health delegates, their ability to collect, analyse and make decisions is most likely limited. Therefore, each health delegate can potentially

use different methods for data acquisition, can ask different questions and collect different information on a disaster or complex emergency situation. As identified by Altay and Labonte (2014), humanitarian information management and exchange (HIME) is critical in crisis situations and failure to manage information in a timely and accurate manner has a negative impact on affected populations. Additionally, appropriate evidence-based guidelines may or may not be used in wider program designs or interventions.

The Complex Emergency Database Report (2011, p.9) identified basic deficiencies: “inconsistencies in definitions both for civil conflict and health indications are a major barrier to the best use of available data”. An inter-agency real time evaluation of the humanitarian response to Typhoons Ketsana and Parma in the Philippines found that “no common templates or standardised procedures” in the collection of needs assessments data were used and that this created gaps in needs assessments and the subsequent response to the affected population (Polastro, Roa & Steen, 2010, p.18). This was further identified by Gerdin, Chataigner, Tax, Kubai and von Schreeb (2014) in their review of decision making by humanitarian health agencies. A similar outcome was identified in the real-time evaluation of the humanitarian response to Pakistan’s 2010 flood crisis. The outcome was a recommendation that future emergencies in Pakistan adopt standardised assessment methodology based on the IASC guidelines (Polastro, Nagrah, Steen & Zafar, 2011). As these real-time evaluations have identified, common reference resources are needed across the spectrum of humanitarian work to collect and analyse data, share information and make appropriate and informed decisions in a timely manner. Deficiencies and limitations in these processes reduce the effectiveness of interventions (Gerdin et al., 2014).

It is clear that the large majority of surveyed headquarter staff had limited knowledge regarding type and quantity of reference material available for health delegates in the field. It is also clear that not only are there no standard sets of reference materials given to the health delegate prior to deployment, there are no standard sets of reference materials provided within each field location. These findings stress that health delegates’ access to appropriate reference resources is random and limited.

Further findings identified little or no structure for providing information or reference resources to health delegates between missions. Across all five surveyed headquarter groups there was no system—or a very limited system at best—that provided health delegates information surrounding current issues and challenges faced by humanitarian organisations, updates on peer-reviewed reference resources and best practice guidelines, or any applicable research and education tools currently available. Additionally there was the prevailing attitude that health delegates were expected to access and source their own resources and information whilst on mission.

For new health delegates there is a requirement to undertake a basic training course but, as identified by headquarter staff, this was at times circumvented due to the urgent need to have health delegates on the ground. The problem as identified by several headquarter staff is that some health delegates were deployed without the skills and competencies to possibly undertake the role.

Across the five surveyed headquarter groups and the majority of health delegates there was general agreement that health delegates can have significant periods away from the humanitarian environment.

Currently there are no systems to maintain, monitor and measure professional practice currency as outlined below:

- health delegates are not required to undertake refresher training (except for some ERUs)
- there is no continuous professional development pathway from the Red Cross surveyed groups
- there is no competency requirement for health delegates to deploy other than their normal health registration obligations.

Collectively, the findings reveal that instead of a dynamic and learning organisational culture there is a void surrounding the gathering, creation, use and dissemination of knowledge itself. A large majority (over 90%) of the surveyed headquarter staff identified that either no or only a very limited knowledge management system existed at the organisational level. Respondents from the ARC, IFRC and ICRC all identified the loss of institutional memory as a real concern. It was also felt that through high

staff turnover operational knowledge was continually being lost. Another issue identified by some headquarter staff was the lack of use of lessons learned documents as a mechanism to improve programming.

The exception here was the British Red Cross and their own Emergency Response Unit. As identified by the BRC headquarter staff there was a deep sense of ownership with regard to how the Emergency Response Unit (ERU) operated and the delegates' skill set. They used lessons learned reviews to improve deployment practices and delegates were required to undertake refresher training. However, the BRC headquarters group felt somewhat removed from the health delegates' ongoing professional training when they were recruited to either the International Committee of the Red Cross (ICRC) or the International Federation of Red Cross and Red Crescent Societies (IFRC).

Both the IFRC and the ICRC identified the use of a limited knowledge management system and outlined the difficulties maintaining the system. The IFRC identified a system whereby they collected and reported on clinical data but that this was not designed as a primary support mechanism for health delegates. An offline library was available but maintaining its currency was difficult to achieve.

For headquarter staff, issues of maintaining and improving one's own level of professional knowledge were hampered somewhat by the time pressures and work load of their current positions. There is clearly an identified weakness surrounding the lack of knowledge management processes in place at the institutional level. The provision of knowledge management support given to health delegates is clearly an individually driven process rather than anything coordinated at an organisational level.

Headquarter staff are the conduit by which health delegates are recruited, trained and deployed. The way health delegates are managed and supported is crucial for health delegates to be able to perform as professionals in the field. The findings of the study highlight an absence of appropriate knowledge management processes, which can impact negatively on maintaining and strengthening an organisation's ability to leverage and apply their specialised knowledge. The research findings draw attention to four areas that impact health delegates' ability to function in the field:

1. the organisation's ability to provide appropriate clinical guidelines using recognised best-practice standards measured against evidence based research to health delegates
2. the organisation's ability to capture, create, disseminate and apply knowledge as a valued commodity
3. the organisation's ability to measure currency and competency of health delegates knowledge and skills
4. no structured organisational system for health delegates and headquarter staff to maintain and improve their knowledge base through a continuous professional development program.

The lack of knowledge management processes exhibit a flow-on-effect across the broader organisational structure. A self-perpetuating cycle of a failure to address knowledge management issues is somewhat maintained by the lack of institutional memory within the organisation. This is an issue acknowledged by headquarter staff as an ongoing concern. As recognised, lessons learned reviews and issues raised by returning health delegates are mostly lost. There is currently no structured system to capture and build on these experiences.

Currently, health delegates, through their national societies, can be recruited for a particular mission but, once completed, the health delegate often has breaks between missions. This creates an artificial situation where a continuous high turnover of staff becomes a constant. Without capturing this knowledge of the health delegates' mission experiences, other health delegates fail to learn from the successes or failures of past programs. This, combined with high staff turnover at headquarter level, compounds the operational knowledge loss.

These findings reinforce the argument that, for the most part, humanitarian aid is still rooted in a semi-professional approach. The literature review has highlighted that progress within the broad humanitarian community is moving towards a fully professional body with its own specialised body of knowledge, but is slow in providing the structural reforms needed to do so. It is clear that the current practices of headquarter staff impact negatively on both their ability to support health delegates and also their ability to provide themselves with important knowledge based skills

through professional development. The findings strongly suggest that significant structural reform is required. Headquarter staff for the most part are aware of the deficiencies at the headquarter level. There is clear acknowledgement that wider knowledge management processes need to be improved. Headquarter staff are trying to address a lack of resources for the health delegates as an individual process rather than at the organisational level. The question here is: What is hindering, or preventing, this process from happening? Whilst not the focus of this present research, it is recommended that impediments to improving knowledge management processes be examined. A suggestion to be made here is that whilst health delegates must take a great deal of responsibility for making decisions and delivering health based interventions using sound evidence based reference resources, the overall impetus for achieving professionalism needs to originate at the headquarters level.

8.3 Attitudes and Culture Towards Knowledge Management

Practice of Health Delegates

The majority of experienced health delegates viewed humanitarian work as something they see as a long-term proposition rather than full-time employment. Long-term engagement as opposed to full-time employment allows the health delegate to engage in humanitarian work on a mission-by-mission basis. Reasons given included having the flexibility and choice of being able to choose a mission that suited their own professional and personal set of circumstances. All six respondents identified having breaks away from the humanitarian environment as an important factor.

Of the general health delegates surveyed, results highlighted that some respondents viewed humanitarian engagement as both potentially a full-time and a long-term career opportunity. Thirty three general health delegates viewed full-time employment as something they would consider pursuing but seven of these respondents cited the lack of a structured career path as a reason why they did not engage in a full-time capacity. Nevertheless, a further five respondents who identified with full-time humanitarian employment stated they still needed to have extended breaks away from the environment.

It is clear from the findings that the majority of health delegates who identify with humanitarian work as a full-time career like to have extended breaks away from the

environment to maintain their clinical skills, maintain personal relationships, spend time with family, de-stress and have a more balanced work/life arrangement. For the 23 general health delegates who did not view humanitarian work as a full-time career, over half of those health delegates identified maintaining family and social relationships and a more balanced work/life arrangement as reasons.

We can view humanitarian engagement as two distinct operational theatres. In one, headquarter staff, through normal employment arrangements, have the ability to maintain an active work/life balance and maintain normal social relationships. In the other, health delegates who—through their field roles—are subject to a host of different stressors that require them to take periods away from the field.

As identified by over half of the 23 general health delegate respondents who did not view humanitarian work as a full-time career, the lack of a career structure was identified as a limiting factor in pursuing humanitarian work as a full-time career. A distinct lack of a career path may also be a contributing factor in health delegates not maintaining an ongoing continuous professional development program.

Overall a large majority of general health delegates (72%) identified with humanitarian work as a long-term option. Issues such as the ability to maintain family and social relationships, maintain their career back home and have time away from the environment, were viewed as key factors in viewing humanitarian engagement as long-term rather than full-time. Again, a lack of a structured career path was mentioned as a limiting factor in their ability to work more in humanitarian fields. A quarter of general health delegates surveyed did not view humanitarian work as a long-term proposition. A lack of a career path was identified as a contributing factor, along with the stressful environment in the field. The findings highlight that for the majority of experienced and general health delegates humanitarian work is stressful and that maintaining a work/life balance was extremely important. Although humanitarian work is a full-time career choice for some health delegates, it is clear that for many health delegates, humanitarian aid work remains a second area of practice. Issues such as a lack of a career pathway, limited professional development opportunities, uncertain availability of missions, and maintaining a work/life balance were seen as key drivers.

As identified in Chapter 3, humanitarian work currently lacks those elements that define a profession: professional registration, a self-regulating governing body, the use of universally recognised peer-reviewed evidence-based standards of practice, and a continuous professional development program for practitioners.

Maintaining Currency of Practice

Reviewing how health delegates stayed current with the issues and challenges within the humanitarian environment was important for a couple of reasons. First, it was useful to determine what health delegates identified as constituting professional development. Second, it was necessary to identify the mechanisms by which health delegates maintained their professional development education. The Internet and development of electronic courses, access to e-journals and specialised World Wide Web sites, now provide health professionals with the ability to source and maintain educational requirements from the comfort of home within their own country.

Five out of the six experienced health delegates acknowledged the difficulties in maintaining a level of currency with issues and challenges within the humanitarian environment. One contributing factor cited was the competing demands of their professional requirements at home and abroad. Trying to maintain a knowledge base around the different health specialties was also identified. The variety of roles required of a general health delegate make it difficult to maintain the required level of knowledge. Another variable that adds to the difficulties health delegates are often faced with is that their roles often change once they are deployed. This makes it harder for health delegates to access pre-mission knowledge-based resources that may be needed on mission.

The majority of general health delegates (45 respondents; 77.58%) felt they stayed current with the issues and challenges within the humanitarian environment. However for 18 of these 45 respondents, their key methods of maintaining professional currency were informal mechanisms such as talking with colleagues, experience in the field and media reportage. This is obviously predicated on the ability of those already in the field to have a currency of professional development, which, is questionable as this study shows.

This research has identified several issues that warrant addressing. The lack of any continuous professional development process for health delegates is one; a second is the need for health delegates to maintain and improve their professional knowledge and skill-based competencies. Moreover, it exposes a rather insular approach to professional practice whereby these health delegates fail to take into consideration evidence-based advances in clinical practice. It also suggests that their practice outcomes are not measured against current best-practice guidelines. It is suggested that a lack of appropriate headquarters' culture and requirements around knowledge management issues influences the way health delegates view and undertake their clinical practice in the field.

The extent of the use of Internet-based resources provided some surprising data. Only one general health delegate identified accessing e-publications. This is somewhat surprising given that many of the traditional health-based publications (for example *Lancet*, *New England Journal of Medicine*, *Journal of Public Health*) as well as a significant number of free open access health related journals (for example *Conflict and Health*) are available online. This suggests that health professionals working in humanitarian environments consider this type of professional development a low priority.

The majority of health delegates, however, said they used a variety of specific humanitarian websites. This suggests that accessing the more traditional peer-reviewed journals as a mechanism to update clinical knowledge is being overtaken by more specialised humanitarian websites such as Crisis Group, Relief Web, ALNAP, ICRC and IFRC to name a few¹². Financial cost may be a contributing factor as many traditional peer-reviewed publications attract a subscription fee whereas websites created by humanitarian organisations are free to access and material is free to download as is the case with open access journals.

The research indicated that the vast majority (over 90%) acknowledged they would like to have better access to humanitarian publications because constant access would provide a good reference resource and build their knowledge of humanitarian practices. As identified by some health delegates, however, the time to source

¹² www.crisisgroup.org, www.reliefweb.int, www.alnap.org, www.icrc.org, www.ifrc.org

appropriate sites and relevant information was a constraint and a major factor in not accessing these resources. For health delegates already on mission access to Internet-based peer-reviewed publications may be limited or non-existent. However, for those health delegates between missions there appears to be no salient reason to stop them from accessing such resources. The proliferation of humanitarian websites providing a range of resource tools, publications, guidelines, assessment methodology and research papers may help explain why only a small number of health delegates (10%) used ICRC and IFRC websites. It may also highlight the limited scope and useability of the available resources and information.

ICRC headquarter staff acknowledged access to their own Lotus Notes database was only for those currently on mission. The recent development of Internet resource sites such as MEDBOX¹³ and TWINE¹⁴ complement an already established network of humanitarian websites (e.g., ALNAP, Relief Web, ODI) and international organisation websites (e.g., United Nations, WHO, Red Cross and MSF). Humanitarian organisations and all health aid workers now have the ability to access and download an abundant range of freely-available online knowledge-based reference resources.

The ICRC online training centre provides free-of-charge e-learning modules on IHL¹⁵. The IFRC learning platform provides access to both free on-line courses across a wide range of humanitarian areas of practice as well as fee-paying professional development courses with certified universities¹⁶.

The Australian Red Cross also use this learning platform, which is free to access once an account has been created. These sites are easy to access and provide a broad range of educational opportunities to those already working in the humanitarian environment as well as those looking to get into humanitarian work. It is therefore surprising that across the health delegates surveyed, the use of the ICRC and IFRC websites were used by less than 10% of health delegates. Some health delegates identified that their knowledge of where to go on the Internet to look for information was limited. This

¹³ www.medbox.org

¹⁴ www.twine.unhcr.org/app/index.php

¹⁵ www.icrc.org/en/about-the-online-training-centre

¹⁶ www.ifrc.org/learning

may highlight a lack of awareness on the part of the health delegate around what actually is available on the Red Cross websites, but it may also highlight that the knowledge-based resources health delegates are looking for are not available on the respective websites.

Even if health delegates are aware of what courses and information resources are available it does not guarantee that they will do the courses or access the information. The ICRC and IFRC have developed their Internet websites to deliver e-courses and knowledge-based resources as well as specific technical guidelines. Whilst this is a stride forward, knowledge management practices remain fragmented in their application.

This research has highlighted a set of key issues that impact the health delegates' ability to maintain a professional level of currency and access the appropriate knowledge-based resources in the field and between missions. Eighteen of the total (experienced and general) health delegates surveyed acknowledged that they are unable to stay current with the issues and changes within the humanitarian environment but the majority of general health delegates (45) stated they did in fact stay current with issues and challenges. Nonetheless, as the data shows an individual's interpretation of what "current" means is variable.

8.4 Health Delegates Access to Peer-Reviewed Reference Resources

Only a small proportion of all health delegates surveyed (8 respondents; 12.30%) acknowledged having available all the appropriate reference resources they needed on mission. Forty four health delegates identified having some but not all of the necessary knowledge-based resources in the field. No single issue was identified as the main contributing factor and health delegates identified the absence of standard reference resources, resources that go missing, poor quality of Internet connections, a lack of context specific resources, and the health delegates' awareness of what and where to find the necessary resources as contributing factors. A broad range of health delegates acknowledged their ability to perform their job properly was affected by not having appropriate resources.

It is not surprising, then, that the majority of health delegates (52 respondents) transported their own reference resources with them on mission. Clinical-based guidelines accounted for nearly half (45%) of all reference resources health delegates sourced themselves. Interestingly hard copy books were mentioned nearly a quarter of the time; it is possible that electronic copies of these books are unavailable or acquiring them is cost prohibitive. It may also mean that accessing them via a computer may be difficult to achieve when in the field.

Apart from the identified clinical reference resources, health delegates brought with them from previous missions a range of material such as operational templates, project management documents and previous reports. The findings show that headquarter staff have limited processes for capturing, sharing and using lessons learned from returning health delegates suggesting that even if a range of operational issues are identified they may not be addressed. Another possible factor is that a continual turnover of health delegates and headquarter staff may further contribute to operational knowledge being lost.

As acknowledged by headquarter staff, experienced and general health delegates, there is a clear lack of standard reference resources available to health delegates in-country. It is therefore difficult for health delegates to apply the same level of evidence-based practice on mission as in their home country. As the majority of health delegates source their own reference and other associated resources it is reasonable to suggest that an inconsistency in the types of reference resources used will result in decision making and the application of health interventions varying from delegate to delegate. This is highlighted by the fact that half of the experienced health delegates identified that their primary decision making was based on their experience. The use of evidence based practice was not a primary consideration. The use of an evidence based methodology as a primary approach to decision making was identified only by a small selection of general health delegates (10 respondents; 19.23%). Overall, a quarter of the experienced and general health delegates (15 respondents; 25.86%) identified using a combined approach of their professional experience and evidence based methodology.

There is almost unanimous agreement from the experienced (6/6) and general health delegates (51/52) that, if they were provided with a variety of reference resources,

operational templates and educational materials, they would use them. The evaluation of the trial PRT by the experienced delegates reinforced that finding. It is reasonable to suggest that a portable and easily accessible library of peer-reviewed reference resources would provide the health delegate the flexibility to meet a variety of difficult and challenging circumstances such as those encountered during natural disasters and violent conflicts.

Health delegates identified changes to their initial operational role, limited access and reliability of information technology, a lack of appropriate peer-reviewed reference resources, absence of many operational templates, difficulties in maintaining a level of professional development, and extended breaks between missions as issues that impact their ability to perform their role to the standards they would like. Although the PRT is not the complete answer to these concerns, it does address many of the acknowledged access issues. It provides health delegates the ability to access and use a wide range of educational resources, peer-reviewed reference material and operational templates. Improved use of information technology and the availability of digital resources now enables health professionals to have at their fingertips a wealth of necessary professional resources.

8.5 Decision-making Support for Health Delegates

Clinical decisions must be evidence-based but they must also incorporate the relevant factors pertaining to operational context and local knowledge. As discussed in Chapter 3 the modified OODA Loop as a decision-making mechanism addresses identified gaps in the use of knowledge management processes in humanitarian interventions. The PRT supports the collection of information by providing standard assessment methodology templates that allow health delegates to collect uniform and appropriate data. The data can then be turned into actionable knowledge. The PRT then provides the operational support health delegates require by having easily accessible appropriate evidence-based clinical guidelines in decision-making and program design processes. As the humanitarian sector moves forward, health professionals and humanitarian organisations must be accountable for their practices. The modified OODA Loop and the PRT help address these issues by providing a knowledge-based framework for health delegates to make evidence based decisions based on an understanding of operational context and local knowledge and the use of appropriate

reference resources. The implementation however of a decision-making framework is firmly rooted in an organisation's culture of knowledge management. This research has shown there is broad failure at headquarter level to manage knowledge. Both the proposed modified OODA Loop and Portable Reference Tool, used together, have the potential to address these issues.

8.6 Portable Reference Tool

The main aim of this research, as outlined in Chapter 4, was to improve the ability of humanitarian health aid workers to function in complex emergency and humanitarian environments by providing easy access to appropriate and explicit knowledge-based resources necessary to improve informed decision making processes. The development of the PRT is a significant contribution to satisfying this need. Computing hardware (Seagate Wireless Plus) and software applications make the PRT a tool that could provide humanitarian health workers a wide range of professional and entertainment resources that are able to be easily accessed and used.

The development of the PRT provides humanitarian organisations both the opportunity and ability to easily standardise a wide range of reference resources and other associated materials. The use of simple file sharing programs such as Dropbox allows for organisations to effortlessly provide relevant updates in clinical practice, new research and any other changes in the humanitarian environment. Depending on the reliability and availability of the Internet these updates can be provided to health delegates currently on or between missions. Health delegates who may have prolonged periods between missions can benefit by being kept abreast of the changes in various areas of clinical practice.

As health delegates have identified, the reliability of the Internet is often a real-time problem. This can be addressed by humanitarian organisations providing updates via a portable hard drive carried by a health delegate or any other humanitarian delegate to the field when they deploy. The size of portable hard drives allows for large amounts of digital data to be easily transported in a device that is able to be placed in a large pocket. Such reference resources are not only available to be used as needed but also act as a clinical safety net for when the health delegate is tasked with a role through operational necessity, outside the scope of their normal area of practice. It also

provides health delegates with the ability to access their personal digital entertainment choices as a means to relax and unwind. Although outside the scope of this research, digital material for leisure activities was acknowledged as a need by the majority of health delegates.

The favourable evaluation of the PRT by two experienced health delegates supports its ongoing development. Furthermore the applications and software placed on the PRT were judged as being appropriate and useful. The evaluation of the trial PRT reaffirmed earlier data that if health delegates had access to appropriate and easily accessible reference resources they would use them to support their decision making processes in the field environment. The overall research findings and the conclusions of the evaluation of the trial PRT support this study's research aim which was to improve the ability of humanitarian health aid workers to function in complex emergency and humanitarian environments by providing easy access to appropriate knowledge-based resources necessary to make informed decisions. Health delegates want access to a wide range of appropriate reference resources and have indicated if these resources were provided, they would be used. However, significant issues remain to be resolved before the PRT could be adopted widely. One such issue is the financial cost of purchasing the PRT and its associated hardware and software. Would the Red Cross organisation purchase it? If so, would the health delegate be required to return it after their mission? Other issues centre around the practicalities of the PRT. Who would maintain the tool? Who would decide which reference resources are added to the PRT?

8.7 Recommendations

It is clear that there is no governing body which requires humanitarian organisations to meet recognised standards of practice. There are no requirements for a health professional working in humanitarian fields to meet the same exacting standards required in a developed health system. Whilst accountability has become a catch phrase in terms of monitoring funding mechanisms, humanitarian organisations must adopt professional accountability of humanitarian health practitioners' practices, decision making and program interventions. Knowledge acquisition, capture, creation and use must become the visible pillar of each organisation.

The data shows that there is a clear need to improve humanitarian health-related performance in terms of the use and implementation of peer-reviewed standards of practice, decision making processes and continuous professional development of health practitioners. The recommendations outlined below look at providing a clear framework for both Red Cross organisations and health delegates, providing a mechanism to transform the way health professionals engage in humanitarian practice and how humanitarian organisations value and accept knowledge management systems. Nevertheless, as this research has shown, multiple issues impact on headquarter staff and the health delegates. The PRT is proposed as a means to improve the ability of health delegates to make better informed decisions in the field. The data from this study highlights the need for access to appropriate reference resources by health delegates in the field. The evaluation of the trial PRT supports the use of the PRT in the field as a means to improve decision making processes. The adoption of the PRT for use in the field by health delegates should be encouraged as a first tentative step to improve humanitarian practice.

8.7.1 Recommendations for Health Delegates

Health delegates provide the link between the respective organisation and the health needs of affected populations. Organisations are only as strong as their weakest link. It is essential that humanitarian health workers practice and fulfil their professional obligations irrespective of where they work. Humanitarian practice must meet the professional, ethical and accountable obligations that we expect within the health care systems of developed countries. To do any less is a direct violation of professional practice requirements in the home country of the health delegates.

Health delegates currently have no professional obligations outside of their own practice registration requirements in their home country. The humanitarian sector must reposition its approach from a semi-professional area of practice to one in which recognised standards of practice, continuous professional development, ongoing registration requirements and the accountability of humanitarian organisations and their staff are an accepted and necessary professional requirement of practice. Through this system a more ethical and accountable modality of practice is delivered and vulnerable populations are treated with the same level of professionalism as expected within developed health care systems. The underlying reality is if humanitarian health

practice is measured against our own developed health care systems then we would fail the test.

The data from both the surveyed headquarter groups and health delegates clearly show that existing knowledge management systems do not meet the same exacting health standards as in developed health care systems. Consequently, it is possible that vulnerable populations in the future could look to legal mechanisms to seek justice or legal settlement for what they believe were poor decision-making processes and inadequate or inappropriate health interventions.

Unfortunately, until the surveyed Red Cross groups implement a more structured and robust knowledge management system, health delegates must take a more pragmatic and methodical approach to their own professionals needs. They are stuck between the beneficiaries whom they serve as well as the organisation they work for. It is therefore recommended that:

- Health delegates undertake advocacy measures to persuade their respective organisation to provide standardised reference materials in an easily transportable format.
- Health delegates take more responsibility in maintaining knowledge and skills related to their humanitarian work practices.

Advances in communication technologies have thrust a shining light on humanitarian organisations and their interventions. This light will continue to highlight their actions. The humanitarian sector must align itself with twenty-first century standards. Until that takes place, accountability of health related practices remains an area of concern.

8.7.2 Recommendation for the Red Cross Movement

Without a current governing body to regulate practice frameworks for humanitarian health professionals, individual organisations need to provide a coherent knowledge framework in which health delegates are able to practice in a professional and ethical manner. The Red Cross movement comprises the international organisations of the International Committee of the Red Cross (ICRC) and the International Federation of Red Cross and Red Crescent Societies (IFRC) as well as the 189 national societies around the globe. Through this collective the Red Cross movement is encouraged to

embrace a twenty-first century acceptance of knowledge management practices. This process should encompass:

- Implementation of a knowledge management system that values the capture, creation, dissemination, use and evaluation of knowledge as an operational commodity throughout the various organisations. This can be done by:
 - employing a professional trained knowledge management officer
 - introducing a continuous professional development program as an ongoing professional requirement for headquarter staff and health delegates
 - providing time, resources and educational opportunities to staff to meet their Continuous Professional Development requirements
 - developing and implementing a standardised, peer-reviewed reference resource library in digital form to all health delegates in each mission location
 - allocating a set of standardised peer-reviewed hard copy reference resources to each mission location
 - providing a Portable Reference Tool resource so health delegates are able to easily access reference resources as well as other types of digital material independent of Internet availability.
- The adoption of a structured decision-making model. The modified OODA Loop provides a structured decision-making process that addresses identified limitations in humanitarian response. Adoption of this model allows for a structured and systematic approach in combining all key stakeholders through the multiple stages of the modified OODA Loop and using evidence based knowledge based resources in the decision-making process.

It is not enough for humanitarian organisations to understand the need to manage their intellectual property. They must accept that knowledge management is a core process that determines the ability of each organisation to function throughout all levels of staff and programming. Red Cross organisations must take responsibility for the necessary structural and professional support that enables a health delegate to function at the highest clinical level when deployed in humanitarian operations.

This support should include:

- Providing the appropriate training to all health delegates before deployment

- Increasing surge capacity so health delegates are not required to deploy before appropriate training is completed.
- Providing all necessary educational and reference resources to health delegates between and on missions as part of a formalised Continuous Professional Development program.

Effecting structural change and embracing knowledge management processes as part of adopting professional health practices should include at the minimum annual conferences for all health aid practitioners. As in developed health systems, regular conferences allow participants to update their knowledge base grounded on peer-reviewed research. A call for papers for presentation allows health workers to formulate and share areas of concern whilst embracing activities that enhance practice grounded in evidence-based research and best-practice guidelines.

8.7.3 Recommendation for Humanitarian Practice Structures

Humanitarian organisations work across the spectrum of humanitarian needs in disasters, violent conflict and development. Therefore it is increasingly necessary that, across short and long-term intervention cycles, programming is underpinned by recognised standards of practice and peer-reviewed knowledge-based resources. Collection of data must be standardised and recognition of basic terms be agreed to. To this end it is proposed that a professional humanitarian regulating body be created with health as a sub-specialty component. This body would oversee the registration of each health professional working in humanitarian environments. The same processes of accountability and continuous professional development would apply as currently expected by the primary professional health body that registers the health delegate when working in the health sector in their home country. The system already exists for health specialists such as surgeons, anaesthetists, intensivists, general practitioners, registered nurses, midwives, nurse practitioners and for other allied health practitioners. The creation and adoption of this system brings those humanitarian health professionals in line with current expectations around areas of clinical practice and associated educational responsibilities. It is paramount that improving the professional standards of humanitarian health workers allows for the provision of the same level of accountability for practitioners, patients and vulnerable populations alike.

The creation of an international regulating body would then be able to provide evidence-based research and best practice guidelines that deliver humanitarian professionals a clear and unambiguous clinical pathway. The use of a standardised process for assessment methodology, data acquisition, program development, monitoring and evaluation mechanisms could potentially achieve universal implementation irrespective of organisation or country of assignment.

A benefit of having a regulatory body is that workshops, lectures, forums and conferences become easily accessible to all humanitarian professionals. Continuous professional development then becomes entrenched as part of the humanitarian practice cycle. Continued improvements in knowledge practices create opportunities for research as an integral component of professional practice. Through these mechanisms humanitarian practice as a whole, and health practitioners as individuals, become professionally accountable for their actions.

8.8 Limitations

This present study has provided the background for understanding the gaps in knowledge management in the Red Cross movement as well as a broader understanding of the gaps and failures in the wider humanitarian community. It has also identified the needs of health delegates in relation to knowledge based resources. However limitations were inherent in the methodology of this research.

Locations

Unfortunately, due to high-level security concerns as advised by ICRC, travel to field locations was not possible. The types and quantities of reference resources available in field locations was therefore assessed from the general knowledge that headquarter staff had of the various locations as well as of the experiences of health delegates. Because the questionnaire for general health delegates was sent via a link in an email, it was impossible to know if these general health delegates were actually on mission. This could have been addressed in the questionnaire itself.

Sampling Issues

Only one headquarter staff was available for interview from the International Federation of the Red Cross and Red Crescent Society. A wider sample number may

have yielded different results. The three national societies recruited for this research are well funded resourced organisations from developed countries. A wider selection of national societies across different socio-economic countries may have yielded different results and insight into a wider set of operational issues that impact their ability to manage knowledge-based resources. Furthermore, as the participants were recruited solely from within the Red Cross movement, a respondent group from a broader range of humanitarian organisations may have yielded different results.

Data Collection

The researcher acknowledges that as a first time interviewer the collection of interview data could have been stronger. As the interviews progressed, the interviewer became more confident with exploring issues and soliciting data. The researcher was also well aware of the potential for bias. Having worked for the ICRC, IFRC and ARC in a variety of roles I was cognisant not to let any preconceived ideas influence the data collection process.

Survey Design Limitations

The survey design sent electronically could have been strengthened by providing better guidance to the open ended questions. Replacing the phrase “please expand on your answer” with a more structured guided question may have yielded more in-depth data.

Evaluation of the Portable Reference Tool

A broader evaluation of the PRT by a larger number of health delegates may have delivered additional needs around clinical guidelines and electronic reference material. The evaluation of the PRT in a non-field environment is also a limitation of this research. A longer, field based evaluation utilising a large number of health delegates working in different humanitarian environments will yield a more comprehensive evaluations of the PRT. This is also recommended in section 8.9 Recommendation for Future Research.

The Portable Reference Tool

The proposed PRT is based on the accessibility and availability of current technologies. Organisations need to maintain an awareness for further advancements in hardware and software developments. The PRT should be compatible with an

organisation's ability to maintain and provide the appropriate technical support. As with any technology-based tools, users need to know how to use the tools provided. Adoption of the PRT should include ongoing education on how to use the tool and the understanding of what reference resources and templates are available at the time. The initial cost, as well as ongoing costs associated with the purchasing of applications and software of the PRT, is a potential financial limitation. The provision of ongoing technical support will also involve financial investment.

Modified OODA Loop

This research proposed a modified decision-making model for use by humanitarian aid workers in natural disasters, violent conflict and development activities. This modified decision-making model is based on the limitations and lessons learned from current literature, real-time evaluations and published research across a wide spectrum of humanitarian interventions. Any adoption of this model by humanitarian organisations should include further evaluation of the organisation's ability to meet the structural requirements necessary for implementation of this decision making template. Additionally, the adoption of a decision-making model also requires adoption of the use of evidence-based guidelines that support decision-making processes.

8.9 Recommendations for Future Research

This research has identified a weakness by headquarter staff and health delegates in maintaining and enhancing professional development. It would be beneficial to further investigate and understand underlying factors that impact the ability of the surveyed organisations and health delegates to access and use appropriate peer-reviewed resources. Factors should include the financial impact as well as funding mechanisms, operational limitations such as time constraints, current workloads and human resources of headquarter staff. Furthermore, as this research has highlighted, there needs to be a professional review of how humanitarian practice can be developed into a professional body that will self-regulate acknowledged standards of practice, establish registration of practitioners and undertake continuous professional development programs. The evaluation of the PRT has provided a solid starting point for the implementation of a knowledge management tool. The next stage for further

development of the PRT will require a larger sample of evaluators included in field trials across a wide range of humanitarian environments.

8.10 Significance of the Study

As far as the researcher is aware this research is the first to explore the issues of knowledge management of Red Cross health delegates and headquarter staff from different operational standpoints. The study has identified significant knowledge management issues that impact the ability of the surveyed Red Cross organisations and health delegates to perform at the highest professional level. The literature highlights that investment in knowledge management processes is a necessary component of successful businesses as a pathway for improving and enhancing a company's ability to provide efficient and effective services whilst increasing financial gains and reducing financial waste. Furthermore, current health practice is based on evidence-based practice. The wider literature emphasises a general weakness by humanitarian organisations to use standard knowledge management tools, including data collection methodology, communication strategies, compatible software that enhances sharing of information, and decision-making processes.

The research findings show that the humanitarian organisations surveyed have been slow in implementing current knowledge management practices and providing appropriate resources to health delegates. The headquarter staff acknowledged a need to implement better systems to manage their knowledge-based resources and to better support health delegates in the field. This highlights the need for further research to explain why such knowledge management systems are not in place and what impediments currently exist that inhibit implementation of these processes. The findings of the present study show that the province of humanitarian health practice does not meet today's standards of professional obligations. There is a clear disparity between what is expected of health professionals within their own domain of practice compared with the humanitarian environment.

This research has underlined two important areas that need to be addressed. First, that humanitarian organisations have no legally agreed and binding frameworks for best practice guidelines and, second, that a lack of knowledge management systems at all

levels of humanitarian health practice has an impact on decision-making processes and timely and appropriate evidence based interventions.

By identifying these issues, this research has provided a framework for the surveyed organisations to improve their capture, use and dissemination of knowledge and their provision of peer-reviewed resources to health delegates. By addressing professional health-related practices and ongoing educational needs, health delegates will be able to make decisions based on peer-reviewed standards of practice. For those health delegates thrust into unfamiliar roles, their ability to access appropriate and recognised reference resources contained in the PRT to support decision making processes will be improved. This will help contribute to improved beneficiary outcomes.

This research will contribute to the wider humanitarian community's understanding of weaknesses in ongoing health-related practices and the benefits of a robust knowledge management framework. Additionally the development of the PRT provides organisations a valuable reference resource for health aid workers to use in the wide spectrum of humanitarian environments.

8.11 Conclusion

Humanitarianism is a rapidly evolving field of practice. There is now a greater understanding of the existing gaps, failures and lessons learned of operations to change the way humanitarian organisations practice. Inconsistent application of technology still drives misinterpretation of data. This, combined with a failure by organisations to share collected information and the exclusion of local populations in the decision-making process, contributes to continued failures in effective delivery of humanitarian assistance. As real-time evaluation of disaster operations, as well as monitoring and evaluation of the wide spectrum of humanitarian aid programs becomes more common place, the same repeated failures highlight a system that struggles to address these ongoing issues. This research has highlighted knowledge management as a key process to drive professionally required change.

The dedication and courage of professionals who work in stressful, dangerous and complex humanitarian environments is admirable. They are well educated and often place their own safety secondary to the needs of those whom they seek to help. The

world benefits from the dedication and commitment of these professionals. Due to the nature and duration of some types of missions they sacrifice personal relationships and professional career development.

Altruism aside, however, the need to restructure humanitarian organisations to introduce professionally structured knowledge management processes is an important, timely and necessary change. Humanitarian organisations must also acknowledge that support for such a system requires targeted and sustained financial and human resources. To be able to implement and deliver best practice standards through the use of evidence-based programming requires data, information and knowledge to be equally valued across all operational levels of the organisation.

For health delegates, the same high standards of practice and accountability that are expected of health professionals within their own country should apply when working in the humanitarian field irrespective of the type of emergency or development activity. Whilst altruism continues to be seen as the underlying tenet of humanitarian aid work, how we implement and provide health assistance must meet the same exacting standards required in developed countries. This research has identified a variety of concerns around the attitudes and culture of knowledge management practices and areas of professional practice competencies. The recommendations and development of the PRT combined with the use of the proposed modified OODA Loop as the decision-making model will provide a framework for improved aid programs. It is hoped that this framework will help address the development of knowledge management for both humanitarian aid organisations and health delegates. In turn, this will provide better outcomes for those vulnerable populations most in need.

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Every reasonable effort has been made to acknowledge the owners of copyright material. I would be pleased to hear from any copyright owner who has been omitted or incorrectly acknowledged.

Appendix 1

MINUTE

Curtin
UNIVERSITY OF TECHNOLOGY

To	David Overlack
From	Dr Mohammed Ali
Subject	Protocol Approval CIH-05-2010
Date	23 April 2010
cc	Prof Sandra Hopkins, A/Prof Jaya Earnest

Office of Research and Development

**Human Research Ethics
Committee**

TELEPHONE 9266 2784

FACSIMILE 9266 3793

EMAIL: L.teasdale@curtin.edu.au

Dear David,

Thank you for your Form C Application for Approval of Research with Minimal Risk (Ethical Requirements) for the project titled: **Using explicit knowledge models, and best practice guidelines to improve humanitarian outcomes through the development of a knowledge tool for international health workers**. On behalf of the Human Research Ethics Committee, I am pleased to inform you that the project is approved.

Approval of this project is for a period of three years, from 23 April 2010 to 23 April 2013.

If at any time during the period changes/amendments occur, or if a serious or unexpected adverse event occurs, please advise me immediately. The approval number for your project is **HR CIH-05-2010**. Please quote this number in any future correspondence.

Kind regards



Dr Mohammed Ali
Human Research Ethics Committee
Centre for International Health
Curtin University of Technology
Western Australia
Telephone: 9266 3974
Fax: 9266 2608
email: m.ali@curtin.edu.au

Please Note: The following standard statement must be included in the information sheet to participants: *This study has been approved by the Curtin University Human Research Ethics Committee. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784*

Appendix 2

PARTICIPANT INFORMATION SHEET

Project Title: Using explicit knowledge models, and best practice guidelines to improve humanitarian outcomes through the development of a knowledge tool for international health workers

My name is David Overlack. I am a PhD student at the Centre for International Health, Curtin University in Perth, Western Australia.

You are invited to take part in research that looks at ways to improve the decision-making process for health aid workers through the use of an easily accessible comprehensive reference tool. Having worked in the humanitarian environment for a significant period I understand the need to access reference material to make informed decisions. You have been selected for this study because of your experience as a health aid worker with the ICRC, IFRC or your National Society. If you agree to participate, you will be asked to fill out a questionnaire or take part in a 1 hour interview. To be accurate with the interview I will use a digital voice recorder.

Any information you provide will be entirely confidential. No names will be recorded. All data transcribed from questionnaires and interviews will be saved in a password protected environment and reported in a de-identified format. On completion of the project, the data will be transferred onto a CD/DVD and the computer files erased. This CD/DVD and any other associated material will be kept in a locked filing cabinet for a period of 5 years, after which they will be treated as confidential waste. Reports of the research will be submitted for publication, but individual participants or specific organisations will not be identified in these reports. Participation in this project is completely voluntary. Results of the study will be published as reports and articles and made available to participants by email and through the Centre for International Health.

I do not foresee any problems with this research but you may find talking about your experiences difficult. There is no obligation to answer any questions. You will need to

read this *Information Statement* and be sure you understand its contents before you consent to participate. If there is anything you do not understand, or you have questions about, please contact me. If you agree to participate, please proceed to the survey.

This study has been approved by the Curtin University Human Research Ethics Committee. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784

Thank you for considering this invitation.

My personal contact details are:

David Overlack
C/O Centre for International Health
Curtin University of Technology
P O Box U1987
Perth, WESTERN AUSTRALIA 6845
Phone: 011 61 7 3354 4206
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Email: david.overlack@postgrad.curtin.edu.au

My supervisors' details are:

Dr Sandra Hopkins
Centre for International Health
Curtin University of Technology
P O Box U1987
Perth, WESTERN AUSTRALIA 6845
Phone: 011 61 2 9266 1263
Email: s.hopkins@curtin.edu.au

Appendix 3

CONSENT FORM

Project Title: Using explicit knowledge models, and best practice guidelines to improve humanitarian outcomes through the development of a knowledge tool for international health workers

My name is _____

My address is _____

I have read the Information Sheet about this project and I am willing to be interviewed.

I understand that I will not be paid or given any sort of gifts for my help.

I understand that I can stop answering questions and withdraw from the research at any time and I can ask questions about the project.

I am helping with the project on the understanding that my answers will be kept confidential, and my name will not be associated with my answers.

I agree to the interview being digitally recorded.

I am happy for the researcher to use my answers to the questionnaire or interview questions in reports and publications as long as my wishes regarding confidentiality are followed.

Signed _____

Date _____

Please email, fax or post this sheet back to the researcher

Email: david.overlack@postgrad.curtin.edu.au

Email: davidoverlack@hotmail.com

Appendix 4

Self-administered Questionnaire for Health Aid Workers

1.

My name is David Overlack. I am a PhD student at the Centre for International Health, Curtin University in Perth, Western Australia.

You are invited to take part in research that looks at ways to improve the decision making process for health aid workers through the use of an easily accessible comprehensive reference tool. You have been selected for this study because of your experience as a health aid worker with the ICRC, IFRC or your National Society. The end result of this study is the development of a reference tool that will be made available to you. Your input will help develop the materials and content of this tool.

All information collected through Survey Monkey is strictly anonymous. No names or email addresses are recorded. All data collected will be kept in a password protected environment.

If there is anything you do not understand, or you have questions about, please contact me.

This study has been approved by the Curtin University Human Research Ethics Committee. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784.

Thank you for considering this invitation.

My personal contact details are:

David Overlack
C/O Centre for International Health
Curtin University
Phone: 011 61 7 3354 4206
Mobile: 0419 745 934
Email: david.overlack@postgrad.curtin.edu.au

My supervisors' details are:

Dr Sandra Hopkins
Centre for International Health
Curtin University
Phone: 011 61 8 9266 1263
Email: s.hopkins@curtin.edu.au

If you agree to participate, having read the information about the research, please proceed to the survey.

Self-administered Questionnaire for Health Aid Workers

2.

1. What is your age?

Age in years

2. Please list your qualifications up to and including undergraduate degree level.

3. Do you have any post-graduate qualifications in public health related health fields? If yes, please indicate what qualification.

Yes

No

Public health related qualification

4. Do you have any post-graduate qualifications in humanitarian related health fields? If yes, please indicate what qualification.

Yes

No

Humanitarian related health qualification

5. Please indicate how many humanitarian aid missions you have undertaken with the following organisations.

ICRC	<input type="text"/>
IFRC (ERU)	<input type="text"/>
IFRC (FACT)	<input type="text"/>
IFRC (Health delegate)	<input type="text"/>
National Society	<input type="text"/>

Self-administered Questionnaire for Health Aid Workers

6. Have you undertaken a humanitarian aid mission with any other organisation not listed above?

Yes

No

If yes, please specify how many.

Self-administered Questionnaire for Health Aid Workers

3.

1. What type of roles have you undertaken while engaging in humanitarian aid missions?

- | | |
|---|---|
| <input type="checkbox"/> Health Delegate | <input type="checkbox"/> Operating Theatre Nurse |
| <input type="checkbox"/> Medical Coordinator | <input type="checkbox"/> Midwife |
| <input type="checkbox"/> Medical Administration | <input type="checkbox"/> Anaesthetist |
| <input type="checkbox"/> Medical Logistics | <input type="checkbox"/> Surgeon |
| <input type="checkbox"/> Program Manager | <input type="checkbox"/> Primary Health Care Doctor |
| <input type="checkbox"/> Ward Nurse | |

Other (please specify)

2. Has your role ever expanded to take on other types of job descriptions while on mission?

- Yes
- No

If yes, please specify

3. Do you have extended periods (12 months or more) between missions?

- Yes
- No

4. Do you see your humanitarian aid work as a long-term career?

- Yes
- No

Please expand on your answer.

Self-administered Questionnaire for Health Aid Workers

5. Do you see your humanitarian aid work as a full-time career?

Yes

No

Please expand on your answer.

Self-administered Questionnaire for Health Aid Workers

4.

1. The humanitarian environment is constantly changing. Are you able to stay current with issues and changes within the field?

Yes

No

If you answered yes, please specify how you stay current with issues and changes in the humanitarian field.

Self-administered Questionnaire for Health Aid Workers

5.

1. If no, please specify why.

2. Do you access journals during down time between missions (eg - Conflict and Health, Public Health Reviews)?

- Yes
 No

If yes, please specify.

3. Would it be beneficial to you to have these types of publications available in between missions?

- Yes
 No

Please expand on your answer.

4. In your experience as a humanitarian aid worker have you had access to all the appropriate reference material you have required during your mission?

- Yes
 Some, but not all
 No

Please expand on your answer if necessary.

5. What reference material has been available?

Self-administered Questionnaire for Health Aid Workers

6. Do you routinely take reference material with you on mission?

Yes

No

Self-administered Questionnaire for Health Aid Workers

6.

1. If yes, please specify what type of reference material you take on mission.

2. When making decisions in the field, what is your primary reference source?

- Own professional experience
- Evidence-based research/peer reviewed standards

Please expand on your answer.

3. If available, would you utilise appropriate reference material and tools in a portable, easily accessible format on mission?

- Yes
- No

4. Would you find it useful to have a library of document templates available when on mission? Examples may include reporting formats, assessment methodology, health and hospital forms, memorandums of understanding etc.

- Yes
- No

Please expand on your answer.

5. Are there any other types of documents or reference materials you would like to have available in a portable format?

- Yes
- No

Please expand on your answer if necessary.

Self-administered Questionnaire for Health Aid Workers

6. Would having a set of standardised educational tools in digital format be useful?

Yes

No

7. Are there any other types of digital material, either professional or otherwise, that you would like to have easy access to whilst on mission? This may include non work-related items such as music or e-books.

Yes

No

Please expand on your answer.

8. Are there any other comments you would like to make?

Self-administered Questionnaire for Health Aid Workers

7.

Thank you very much for your participation in this survey. I look forward to sharing the completed reference tool with you.
Stay safe - Dave Overlack

Appendix 5

Interview Guide – Headquarter Staff

1. What is your age?
2. What is your position?
3. How long have you been in this position?
4. How long have you worked for the Red Cross?
5. What are your primary qualifications?
6. Do you have any postgraduate qualifications in public health or humanitarian related health fields?
7. Have you undertaken any humanitarian missions? How many? Humanitarian Aid missions have you undertaken in total with?
 - a. ICRC
 - b. IFRC
 - c. ERU
 - d. FACT
 - e. IFRC Health
 - f. National Society
 - g. Other (please identify)
8. What type of roles have you undertaken?
 - a. Health Delegate
 - b. Medical Coordinator
 - c. Medical Administration
 - d. Medical Logistics
 - e. Program Manager
 - f. Ward Nurse

g. Operating Theatre Nurse

h. Midwife

i. Anaesthetist

j. Surgeon

k. PHC Doctor

l. Other

9. Do you provide reference material to HDs going on mission?
10. Do you provide the HD current educational or new reference material/changes within the humanitarian environment between missions?
11. Are you aware of open access journals? If yes, what type and areas.
12. In the country/area/type of assignment are you aware of the type of reference material available?
13. Is there a space between missions for HDs, (perhaps large gaps before sending them to the field); do you require them to undertake a refresher course on their particular area of expertise or a general overview of the changes within the humanitarian environment?
14. Is there any sort of competency requirements [annual] for Hds to maintain their deployment status other than the normal health registration requirements in their country?
15. Are Hds required to undertake a BTC before deployment?
16. For those Hds on ERU rosters are they required to undertake training before deployment? (Some don't do ERU training but may do BCH training)
17. If so do you think HDs have the overall knowledge and skills to deploy?
18. Do you use a particular information management/knowledge management framework to support delegate deployments?

Appendix 6

Evaluation of Portable Reference Tool Questionnaire

1. Age and Mission Experience
2. Does the PRT meet the requirements of portability?
3. Is the addition of the portable Wi-Fi enabled hard drive as part of the overall PRT a useful addition?
4. Does the functionality of both the iPad Air and portable hard drive provide for easy access of information?
5. Is the layout of applications and reference resources easy to navigate?
6. Do the reference resources on the PRT meet your needs?
 - Is there any other specific reference resources you would like to see as part of the PRT?
7. Are the Website links useful?
8. Are there any other Website links that you would find useful as part of the PRT?
9. Is it useful having applications that provide pre-mission information such as:
 - Global Emergency Overview, Humanitarian Kiosk, Relief Central
10. Do the applications meet your needs?
 - Podcasts, etc
 - First Aid App
 - Merck Manual
11. Is being able to share and access files via dropbox useful?
12. Do you like having access to open access journals and humanitarian based podcasts?
13. Would you use the PRT between missions?
14. Are there any other types of applications or reference resources that would make you want to use the PRT more between missions?
15. Are there any other types of applications you would like to see as part of the PRT for on mission and for in-between missions?
16. Is having digital content such as movies, music and e-books a useful addition to the PRT?
17. Would you use this tool in the field to help and support your decision making processes?
18. Is there anything you would like to add?

Appendix 7

Resources on the Portable Reference Tool

Reference Resources, Templates, Learning Papers, and Educational Resources

Communicable Diseases

- Diarrhoeal Diseases, Hepatitis, HIV & STI, Malaria, Tuberculosis, Vaccine preventable diseases

Dental and Eye Care

- Basic Eye Care Training Activities for Community Health Workers, Where there is no Dentists, Eye care in the context of community health and development

Gynaecology & Obstetrics

- Competency based checklists-Postpartum Haemorrhage / Helping mothers survive bleeding after birth-Providers guide 2013 / Helping mothers survive bleeding after birth-2013 / Managing incomplete abortion-Education material for teachers of midwifery WHO 2008 / Managing prolonged and obstructed labour-Education material for teachers of midwifery WHO 2008 / Obstetrics in remote settings 1st Edition 2007 / Paediatric neonatal disaster reference guide-Bridging the gap between EMS and hospital care 2013 / Pregnancy childbirth postpartum and newborn care-A guide for essential practice WHO UNICEF 2006 / The pelvic exam-How to examine a women's vagina and womb / Wall chart-Estimating Blood Loss / Wall chart-Helping mothers survive bleeding after birth / Wall chart-Removing the NASG / Recommendations for the prevention and treatment of postpartum haemorrhage WHO 2012

Internal Medicine

- Common skin Diseases in Africa / Dermatological preparations for the tropics / Hepatology- A Clinical textbook 2013 / Managing meningitis epidemics in Africa-WHO 2014 / The WHO manual for diagnostic imaging / The WHO manual for diagnostic ultrasound / Ultrasound imaging

Non-communicable Diseases

- Cardiovascular Diseases: Global atlas on cardiovascular disease prevention and control-WHO 2011 / Prevention of cardiovascular disease guidelines for assessment and management of cardiovascular risk- WHO 2007 / Prevention of cardiovascular disease-Pocket guidelines for assessment and management of

cardiovascular risk WHO 2007 / Article- Hypertension in developing countries
Lancet 2012

- Diabetes: Definition and Diagnosis of Diabetes Mellitus and intermediate hyperglycaemia WHO 2006 / Prevention of blindness from Diabetes Mellitus WHO 2005

Nutrition

- Acceptable medical reasons for use of breastmilk substitutes WHO / Anthropometric guide 2003 / Fertilizing crops to improve human health / Indicators for assessing infant and young child feeding practices / Medical Aid video-Nutrition / New guidance for children with severe acute malnutrition-WHO / Nutrition guidelines MSF-2006 / Nutrition in the first 1000 days / Nutrition care and support for patients with Tuberculosis

Paediatrics

- Birth defects surveillance-WHO 2014 / Fever management of infants in peripheral health care settings / Guidelines for the management of Tuberculosis in children / Treatment of Tuberculosis in children / Guidelines for maternal newborn child and adolescent health-WHO 2012 / Guidelines and recommendations for child health / Integrated management of childhood illness-A chart book / List of essential medicines for children-WHO 2013 / Manual for child health workers / Manual for the community health worker-A photo book-Identifying signs of illness / Manual for the community health worker-Caring for the sick child in the community / Manual on paediatric HIV care and treatment at the district hospital / Medical Aid video-Is your child sick? / Pocket book of hospital care for children-2nd Edition-WHO 2013 / Recommendations for management of common childhood conditions-WHO 2012 / Vitamin A supplantation in infants and children 6-59 months of age-WHO 2011

Anaesthetics

- Anaesthesia Safety Checklist-WHO/ Basic Guide to Anaesthesia for Developing Countries Vol 1&2/ Assessment of Neuraxial Blockade Level/ Developing Anaesthesia Handbook 2007/ Spinal and Epidural Anaesthesia/ Local Anaesthesia/ Femoral Nerve Block/3-in-1 Nerve Block/ Indications and Contraindications for Regional Anaesthesia/ Infiltration and Topical and Anaesthesia/ Airway Management-WHO

Surgery

- Monitoring and Evaluation Tool for Progress on Surgical Care Health Systems-WHO/ Primary Trauma Care Manual/ Best Practice Safety Protocols Clinical Procedures Safety/ Burn Management-WHO/ Postoperative Care-WHO/ Wound Management-WHO/ Intensive Care Unit-WHO/ Casts & Splints-WHO/ Hand Lacerations-WHO/ Surgical Safety Checklist-WHO/ Surgical Care at the District Hospital-WHO

Disaster Preparedness

- Responding to Flood Disasters: Learning from Previous relief and recovery operations/ Beyond Pandemics: A whole-of-society approach to disaster preparedness/ Standard Operating Procedures for coordinating Public Health Preparedness and Response in the WHO African Region/ Step-by-step Guide to Shelter Construction/ A toolkit for behavioural and social communication in outbreak response-UNICEF &WHO/ Public health events of initially unknown etiology: A framework for preparedness and response in the African Region-WHO/

Food Security

- Fertilizing Crops to Improve Human Health: A Scientific Review/ Food security and nutrition in emergency-IFRC/ Evaluation of Community Management of Acute Malnutrition-UNICEF/ Food Security in a World of Natural Resource Scarcity/ Global Hunger Index 2014/ Nutrition Topic Guide 2013/ Integrating severe acute malnutrition into the management of childhood diseases at community level in South Sudan/ A Toolkit for Addressing Nutrition in Emergency Situations-IASC/ Nutrition Cluster Handbook: A Practical Guide for Country-level Action-UNICEF/ Response analysis and response choice in food security crises: A roadmap/ The State of Food Insecurity in the World-WFP/ Undernutrition: Lessons from Niger/ Achieving Regional Integration: The Key to Success for the Fight Against Hunger in West Africa/ Undernutrition: What Works/

Monitoring and Evaluation

- Evaluation of Humanitarian Action-ALNAP/ A guide to monitoring and evaluation for collaborative TB/HIV activities-WHO/ Monitoring and Evaluation Toolkit: HIV, tuberculosis, Malaria and Health and Community Systems

Strengthening-WHO/ Real-time Evaluations of Humanitarian Action: An ALNAP Guide/

Needs Assessments

- ACAPS Resources: Disaster Summary Sheets for Armed Conflict, Earthquakes, Floods, Tropical Cyclones. ACAPS Quick Impact Analysis Guides for: Earthquakes, Floods. ACAPS Glossary for Disaster Needs Analysis. ACAPS Scenario Building. ACAPS Technical Brief Estimation of Affected Population Figures. ACAPS Technical Brief Table Design. ACAPS. The Good Enough Guide to Needs Assessments. ACAPS Post Disaster Information Management. Emergency Response Frameworks-WHO/ Assessment of HIV in Internally Displaced Situations/ Basic Epidemiology-WHO/ Closing the Loop: Effective feedback in humanitarian contexts-ALNAP/ Community Assessment for Public Health Emergency Response (CASPER) Toolkit-CDC/ Global Health Cluster Suggested Set of Core Indicators and Benchmarks by Category/ Handbook for Disaster Assessment-UN/ Humanitarian Response in Violent Conflict: A Toolbox of Conflict Sensitive Indicators/ Public Health Engineering in Precarious Situations-MSF/ Field Guide to Humanitarian Mapping

Training (These reference resources are often accompanied by a video presentation)

- COTS Program Health Promotion Worker Pocket Card/ Basic Skills and Video/ Breast Engorgement and Video/ Breathing Problems in a Newborn and Video/ Cholera Flash Cards and Video/ Danger Signs in Newborn Video/ Examining the Placenta Video/ Feeding With a Naso-Gastric Tube and video/ Giving an Intradermal Injection and Video/ Giving Good Care Video/ Immediate Care After Birth and video/ Initial Assessment video/ Inserting a Gastric Tube and video/ Inserting an IV and Video/ Jaundice and video/ Newborn Physical Examination and video/ Newborn Care/ Preparing and Injecting Medicines and video/ Referring a Sick Baby and video/ Sepsis and Video/ Setting up an IV and Video/ Skin Infection and Video/ Taking a Heel Blood Sample and Video/ The Cold Baby and Video/ The Home Visit and Video/ The Hot Baby and Video/ The Position of the Baby and Video/ Thrush and Video/ Umbilical Infections and Video/

WASH

- CRS Manager's Guide to PHAST Methodology/ Handbook on Climate Change and Disaster Resilient Water, Sanitation and Hygiene Practices/ Refugee and Internally Displaced Populations: Flows, Occasions and Priorities for Assistance

Women and Child Health

- Integrated Management of Childhood Illness Caring for the Sick Child in the Community-WHO/ Global burden of childhood pneumonia and Diarrhoea/Interventions to address deaths from childhood pneumonia and diarrhoea equitably: what works and at what cost?/ Bottlenecks, barriers, and solutions: results from multi-country consultations focused on reduction of childhood pneumonia and diarrhoea deaths/ Ending of preventable deaths from pneumonia and diarrhoea: an achievable goal/ A Handbook for Building Skills Counselling for Maternal and Newborn Health Care-WHO/ Facts for Life-UNICEF/ Integrated Management of Childhood Illness: Caring for Newborns and Children in the Community-WHO/ Neonatal Tetanus Elimination: Field Guide-WHO/ Packages of Interventions for Family Planning, Safe Abortion care, Maternal, Newborn and Child Health-WHO/ Pocket Book of Hospital care for children: Guidelines for the Management of Common Childhood Illnesses-WHO/ WHO recommendations on Postnatal care of the mother and newborn/ Priority medicines for mothers and children 2011-WHO/ Standards for Maternal and Neonatal Care-WHO
-

IFRC Resources

Disaster Management Tool

Water and Sanitation Guidelines

- Cleaning and Disinfecting Boreholes/ Cleaning and Disinfecting Water Storage Tanks/ Cleaning and Disinfecting Wells/ Delivering Safe Water/ Disposal of Dead Bodies/ Emergency Sanitation Planning/ Emergency Sanitation Technical Notes/ Emergency Treatment of Drinking Water/ Essential Hygiene Messages/ How to Measure Chlorine Residual/ Minimum Water Quantity/ Rehabilitating small-scale Water Distribution, Rehabilitating Water Treatment Works/ Solid Waste Management in Emergencies/
- Hygiene Promotion Box/ Ensuring Safe Water, Sanitation and Hygiene Promotion/ PHAST Baseline Survey/ Sanitation and Hygiene Rapid Assessment Checklist/ Public Health Guide for Emergencies

ICRC eBooks

- Antenatal Guidelines for PHC in Crisis Conditions/ Basic Rules of the Geneva Conventions and Their Additional Protocols/ Caring for Landmine Victims/ Economic Security/ Exercises for Lower Limb Amputees/ First Aid in Armed Conflict and Other Situations of Conflict/ HIV AIDS Field Guide/ The Basics of IHL/ Increasing Respect for IHL in Non-International Armed Conflicts/ Management of Dead Bodies After Disasters/ Mobile Public Health Units/ Nutritional Manual for Humanitarian Action/ Primary Health Care Services/ Rules to IHL/ Support for Life Physical Rehab Program/ Surgery for Victims of War/ War Surgery Vol 1&2/ The ICRC Its Mission and Work/ War Wounds: Basic Surgical Management/ Water and War/ Water, Sanitation, Hygiene and Habitat in Prisons

MSF eBooks

- Clinical Guidelines/ Essential Drugs: Practical Guidelines/ Management of Epidemic Meningococcal Meningitis/ Obstetrics in Remote Settings: Practical Guide for Non-Specialised Health Care Professionals/ Public Health Engineering in Precarious Situations/ Rapid Health Assessments of Refugee or Displaced Populations/ Refugee Health: An Approach to Emergency Situations/ Tuberculosis: Practical Guide for Clinicians, Nurses, Laboratory Technicians and Medical Auxiliaries

Appendix 8



Anaphylaxis during Anaesthesia Diagnostic Card



Absence of tachycardia or cutaneous signs does not exclude anaphylaxis

Grade 1 Generalised mucocutaneous signs: Erythema, Urticaria+/- Angioedema

Grade 2 Moderately severe - Multi-organ manifestations including:
Mucocutaneous signs
Hypotension, Tachycardia
Evidence of Bronchospasm, cough, difficult ventilation

Grade 3 Severe-Life Threatening and requiring immediate and specific treatment:
Cardiovascular collapse
Bradycardia or Tachycardia, Arrhythmias
Bronchospasm
Cutaneous signs may be absent, or present only after correction of hypotension

Grade 4 Cardiopulmonary Arrest

PRESENTING SIGNS AND SYMPTOMS	POSSIBLE CAUSES
Skin and Mucosa Hives, flushing, erythema, urticaria, Swelling head and neck or peripheries	Direct Histamine Release Venous Obstruction Head Down Position C1-esterase deficiency (Angioedema only) Mastocytosis Cold induced anaphylaxis
Airway Compromise Dyspnoea, wheeze, stridor, difficulty inflating lungs	Direct Histamine Release Acid aspiration Exacerbation of asthma Intubation; Oesophageal intubation Foreign Body Difficult airway Visceral traction Mastocytosis Consider: Auto PEEP (disconnect from ventilator) Tension pneumothorax (decompress)
Hypotension	Direct Histamine Release Visceral Traction Vasodilation by drugs Central Neural Blockade Drug Overdose Vasovagal Hypovolemia Mastocytosis Cold induced anaphylaxis
Cardiac Arrest	Myocardial Ischaemia/Infarction Electrolyte Abnormality Sepsis Blood Loss Tension Pneumothorax Cardiac Tamponade Pulmonary Embolism Mastocytosis

ANZAAG-ANZCA Anaphylaxis Management Guidelines Version 1.1 June 2013

Anaphylaxis during Anaesthesia

Immediate Management

DR Danger and Diagnosis
Response to stimulus

Unresponsive Hypotension or Bronchospasm
Cease triggers including Chlorhexidine & Colloid
Stop procedure. Use minimal volatile if GA.

S Send for help and
organise team

Call for Help and Anaphylaxis box
Assign a designated Leader and Scribe
Assign a Reader of this card

AB Secure Airway
Breathing - 100% oxygen

Intubation: airway oedema or compromise
Confirm FIO₂ is 100%

C Circulation: CPR if no pulse
Give IV fluid bolus

If no pulse give 1mg Adrenaline IV
(Paed 10 mcg/kg) and follow ALS protocol
IV Fluid: 20mls/kg bolus repeat as required

D Drugs: Adrenaline
IV Bolus, repeat if needed
Prepare Infusion

IV Adrenaline BOLUSES

Draw up 1mg in 10ml
Adrenaline (1:10,000) = 100mcg/ml
Give dose below every 1-2 minutes prn:

Grade 2 – Moderate Hypotension or Bronchospasm	Grade 3 - Severe Hypotension or Bronchospasm
Adult 5-20 mcg = 0.05 - 0.2 ml	Adult 100-200 mcg = 1 - 2 ml
Child 1 - 5 mcg/kg = 0.01 - 0.05 ml/kg	Child 5 - 10 mcg/kg = 0.05 - 0.1 ml/kg

No IV access or haemodynamic monitoring:
Consider IM Adrenaline

1:1000 (1mg/ml) into lateral thigh

Adult = 0.5ml (500mcg)

<12 years = 0.3ml (300mcg)

<6 years = 0.15ml (150mcg)

Adrenaline INFUSION *If requiring repeated doses of Adrenaline prepare and start infusion:*

Adult 0.05 to 0.4 mcg/kg/min **Child** 0.1 to 5 mcg/kg/min

Example Infusion 3mg/50mls = 60mcg/ml with 1ml/hour = 1mcg/min (70 kg Adult 3.5 – 28 ml/hour)

If NOT RESPONDING see 'Refractory Management'

Once Situation is Stabilised

Consider Steroids	Dexamethasone 0.1-0.4 mg/kg Hydrocortisone 2-4 mg/kg
Consider ORAL Antihistamines	Consider Oral 2 nd Generation Antihistamines when patient able to take oral medications
Parenteral Antihistamines	NOT RECOMMENDED

Consider: Proceed/Cancel/Postpone Surgery
Postoperative ICU/HDU monitoring

Investigations	Tryptase at 1 hour, 4 hours and > 24 hours – <i>Tryptase unstable in whole blood: send <u>promptly</u> to laboratory for processing</i> <i>Use Plain, serum or EDTA tube</i> ABG as required Electrolytes, FBE, Coagulation Screen
Observations	Monitor closely for 6 hours Consider 24 hours ICU/HDU if moderate to severe (up to 20% incidence of biphasic reactions) Anaphylaxis may last up to 32 hours despite aggressive treatment

Letter with Patient: Reaction Description + Agents Used

Refer Patient for Testing and Allergy Assessment

For a referral form & to locate your nearest testing centre go to www.anzaag.com

Anaphylaxis during Anaesthesia Refractory Management

Ensure possible triggers removed

Chlorhexidine including impregnated CVCs
Colloid stop if running at time of reaction
Latex none in theatre

Consider other diagnoses

See '**Diagnostic Card**' in Anaphylaxis Box

Monitoring

Consider Insert **Arterial line** and **CVC**
Consider TOE/TTE to assess filling

Request more help if required

Consider calling arrest code

Resistant Hypotension
Continue Adrenaline and
IV fluid bolus 50 ml/kg

Noradrenaline infusion 0.1mcg/kg/min
Metaraminol infusion if noradrenaline not available
Vasopressin bolus 1-2 units (0.03units/kg) then infusion 2 units per hour
Glucagon 1-5mg over 5 min (βblocker reversal) (Child 20-30mcg/kg to max 1mg)
Consider cardiac bypass where available

Resistant Bronchospasm

Salbutamol IV bolus 100-200mcg
+/- Salbutamol infusion 5-25mcg/min
(Child 5mcg/kg/min for 1 hour then run infusion at 1-2mcg/kg/min)
Consider:
Auto PEEP (disconnect from ventilator)
Tension pneumothorax (decompress)

Pregnancy

Lateral tilt
Caesarean section if arrest or peri-arrest

Once stable refer to '**Post Crisis Management**'

Appendix 9

iPad Air Technical Specifications

Finish	Space Grey	Silver
Models	Wi-Fi	Wi-Fi + Cellular
Capacity and Price¹	16GB AU\$499 RRP 32GB AU\$549 RRP	16GB AU\$659 RRP 32GB AU\$709 RRP
Weight and Dimensions²	<ul style="list-style-type: none">• Height: 240 mm• Width: 169.5 mm• Depth: 7.5 mm• Weight: 469 g	<ul style="list-style-type: none">• Height: 240 mm• Width: 169.5 mm• Depth: 7.5 mm• Weight: 478 g
Display	Retina display <ul style="list-style-type: none">• 9.7-inch (diagonal) LED-backlit Multi-Touch display with IPS technology• 2048-by-1536 resolution at 264 pixels per inch (ppi)• Fingerprint-resistant oleophobic coating	
Chip	<ul style="list-style-type: none">• A7 chip with 64-bit architecture and M7 motion coprocessor	
Cameras, Photos and Video Recording	iSight Camera <ul style="list-style-type: none">• 5-megapixel photos• Autofocus• Face detection• Backside illumination• Five-element lens• Hybrid IR filter• <i>f</i>/2.4 aperture• Tap to focus for video or still images• Tap to control exposure for video or still images• Photo and video geotagging• HDR photos	

- Panorama

Video Recording

- 1080p HD video recording
- Video stabilisation
- Face detection
- Tap to focus while recording
- Backside illumination
- 3x video zoom
- Time-lapse video

FaceTime HD Camera

- 1.2-megapixel photos
- 720p HD video
- Face detection
- Backside illumination
- Tap to control exposure for video or still images
- Photo and video geotagging

Wi-Fi + Cellular model

Cellular and Wireless

Wi-Fi model

- Wi-Fi (802.11a/b/g/n); dual channel (2.4GHz and 5GHz) and MIMO
- Bluetooth 4.0 technology

- Wi-Fi (802.11a/b/g/n); dual channel (2.4GHz and 5GHz) and MIMO
- Bluetooth 4.0 technology
- UMTS/HSPA/HSPA+/DC-HSDPA (850, 900, 1700/2100, 1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz)
- CDMA EV-DO Rev. A and Rev. B (800, 1900 MHz)
- 4G LTE (Bands 1, 2, 3, 4, 5, 7, 8, 13, 17, 18, 19, 20, 25, 26)³
- Data only⁴

Location

- Wi-Fi
- Digital compass

- Wi-Fi
- Digital compass
- Assisted GPS and GLONASS
- Cellular

Video Calling⁵

- FaceTime
- iPad Air to any FaceTime-enabled device over Wi-Fi

- FaceTime
- iPad Air to any FaceTime-enabled device over Wi-Fi or cellular

Audio Calling⁵

- FaceTime

- FaceTime

	<ul style="list-style-type: none"> • iPad Air to any FaceTime-enabled device over Wi-Fi 	<ul style="list-style-type: none"> • iPad Air to any FaceTime-enabled device over Wi-Fi or cellular
Audio Playback	<ul style="list-style-type: none"> • Frequency response: 20Hz to 20,000Hz • Audio formats supported: AAC (8 to 320 Kbps), Protected AAC (from iTunes Store), HE-AAC, MP3 (8 to 320 Kbps), MP3 VBR, Audible (formats 2, 3, 4, Audible Enhanced Audio, AAX and AAX+), Apple Lossless, AIFF and WAV • User-configurable maximum volume limit 	
TV and Video	<ul style="list-style-type: none"> • AirPlay Mirroring, photos, and audio and video out to Apple TV (2nd generation or later) • Video mirroring and video out support: Up to 1080p through Lightning Digital AV Adapter and Lightning to VGA Adapter (adapters sold separately) • Video formats supported: H.264 video up to 1080p, 60 frames per second, High Profile level 4.2 with AAC-LC audio up to 160 Kbps, 48kHz, stereo audio in .m4v, .mp4 and .mov file formats; MPEG-4 video up to 2.5 Mbps, 640 by 480 pixels, 30 frames per second, Simple Profile with AAC-LC audio up to 160 Kbps per channel, 48kHz, stereo audio in .m4v, .mp4 and .mov file formats; Motion JPEG (M-JPEG) up to 35 Mbps, 1280 by 720 pixels, 30 frames per second, audio in ulaw, PCM stereo audio in .avi file format 	
Intelligent Assistant⁶	<ul style="list-style-type: none"> • Siri — Use your voice to send messages, set reminders and more • Use hands-free • Listen and identify songs • Learn more about Siri 	
Power and Battery⁷	<ul style="list-style-type: none"> • Built-in 32.4-watt-hour rechargeable lithium-polymer battery • Up to 10 hours of surfing the web on Wi-Fi, watching video or listening to music • Charging via power adapter or USB to computer system 	<ul style="list-style-type: none"> • Built-in 32.4-watt-hour rechargeable lithium-polymer battery • Up to 10 hours of surfing the web on Wi-Fi, watching video or listening to music • Up to 9 hours of surfing the web using a cellular data network • Charging via power adapter or USB to computer system
Sensors	<ul style="list-style-type: none"> • Three-axis gyro • Accelerometer • Ambient light sensor 	<ul style="list-style-type: none"> • Three-axis gyro • Accelerometer • Ambient light sensor
Operating System	iOS 8	

- With amazing new capabilities and updates to features you use every day, iOS 8 is the biggest iOS release ever. [Learn more about iOS 8](#)

iOS 8 includes

- AirDrop
- AirPlay
- Control Centre
- Family Sharing
- iCloud Drive
- iTunes Radio
- Multitasking
- Notification Centre
- QuickType Keyboard
- Siri
- Spotlight Search

Built-in Apps

- Camera
- Photos
- Messages
- FaceTime
- Mail
- Music
- Safari
- Maps
- Siri
- Calendar
- iTunes Store
- App Store
- Notes
- Contacts
- iBooks
- Game Center
- Reminders
- Clock
- Videos
- Newsstand
- Photo Booth
- Podcasts

Free Apps from Apple⁸

- Pages
- Numbers
- Keynote
- iMovie
- GarageBand
- iTunes U
- Find My iPhone
- Find My Friends
- Apple Store

- Remote

Connector Lightning

Mail Attachment Support

Viewable document types

- .jpg, .tiff, .gif (images); .doc and .docx (Microsoft Word); .htm and .html (web pages); .key (Keynote); .numbers (Numbers); .pages (Pages); .pdf (Preview and Adobe Acrobat); .ppt and .pptx (Microsoft PowerPoint); .txt (text); .rtf (rich text format); .vcf (contact information); .xls and .xlsx (Microsoft Excel); .zip; .ics

System Requirements

- Apple ID (required for some features)
- Internet access⁹
- **Syncing with iTunes on a Mac or PC requires:**
 - Mac: OS X v10.6.8 or later
 - PC: Windows 8, Windows 7, Windows Vista, or Windows XP Home or Professional with Service Pack 3 or later
 - iTunes (free download from www.itunes.com/au/download)

Environmental Requirements

- Operating ambient temperature: 0° to 35° C (32° to 95° F)
- Nonoperating temperature: -20° to 45° C (-4° to 113° F)
- Relative humidity: 5% to 95% noncondensing
- Operating altitude: tested up to 3,000 metres (10,000 feet)

Languages

Language support

English (Australia, Canada, UK, US), Chinese (Simplified, Traditional, Traditional Hong Kong), French (Canada, France), German, Italian, Japanese, Korean, Spanish (Mexico, Spain), Arabic, Catalan, Croatian, Czech, Danish, Dutch, Finnish, Greek, Hebrew, Hindi, Hungarian, Indonesian, Malay, Norwegian, Polish, Portuguese (Brazil, Portugal), Romanian, Russian, Slovak, Swedish, Thai, Turkish, Ukrainian, Vietnamese

QuickType keyboard support

English (Australia, Canada, India, UK, US), Chinese — Simplified (Handwriting, Pinyin, Stroke), Chinese — Traditional (Cangjie, Handwriting, Pinyin, Stroke, Sucheng, Zhuyin), French (Canada, France, Switzerland), German (Germany, Switzerland), Italian, Japanese (Kana, Romaji), Korean, Spanish, Arabic, Bengali, Bulgarian, Catalan, Cherokee, Croatian, Czech, Danish, Dutch, Emoji, Estonian, Filipino, Finnish, Flemish, Greek, Hawaiian, Hebrew, Hindi, Hungarian, Icelandic, Indonesian, Latvian, Lithuanian, Macedonian, Malay, Marathi, Norwegian, Polish, Portuguese (Brazil, Portugal), Romanian, Russian, Serbian (Cyrillic, Latin), Slovak, Slovenian, Swedish, Tamil, Thai, Turkish, Ukrainian, Urdu, Vietnamese

QuickType keyboard support with predictive input¹⁰

English (Australia, Canada, India, UK, US), Chinese (Simplified, Traditional), French (Canada, France, Switzerland), German (Germany, Switzerland), Italian, Japanese, Spanish, Portuguese (Brazil), Thai

Siri languages

English (Australia, Canada, Denmark, India, New Zealand, Singapore, UK, US), Spanish (Mexico, Spain, US), French (Canada, France, Switzerland), German (Germany, Switzerland), Italian (Italy, Switzerland), Japanese, Korean, Mandarin (Mainland China, Taiwan), Cantonese (Hong Kong), Swedish (Sweden), Dutch (Netherlands), Russian (Russia), Turkish (Turkey), Thai (Thailand), Portuguese (Brazil)

Dictation languages

English (Australia, Canada, India, UK, US), Spanish (Mexico, Spain, US), French (Canada, France, Switzerland), German (Germany, Switzerland), Italian (Italy, Switzerland), Japanese, Korean, Mandarin (Mainland China, Taiwan), Cantonese (Hong Kong), Arabic, Catalan, Croatian, Czech, Danish, Dutch, Finnish, Greek, Hebrew, Hungarian, Indonesian, Malaysian, Norwegian, Polish, Portuguese (Brazil, Portugal), Romanian, Russian, Slovakian, Swedish, Turkish, Thai, Ukrainian, Vietnamese

Definition dictionary support

English, Chinese (Simplified), French, German, Italian, Japanese, Korean, Spanish, Dutch, Portuguese (Brazil), Russian, Thai, Turkish

Bilingual dictionary support

Simplified Chinese, Japanese, Korean, Spanish

Spell check

English (Australia, Canada, UK, US), French, German, Italian, Spanish, Danish, Dutch, Polish, Portuguese (Brazil, Portugal), Russian, Swedish, Turkish

<https://www.apple.com/au/ipad-air/specs/>

Appendix 10

Surface Pro 2 Technical Specifications

Software	Windows 8.1 Pro
Exterior	Dimensions: 10.81" x 6.81" x 0.53" Weight: 2lbs Casing: VaporMg Color: Dark Titanium Physical buttons: Volume, Power
Storage* & Memory	64/128GB 256/512GB ----- 4GB RAM 8GB RAM
Display	Screen: 10.6 inch ClearType Full HD Display Resolution: 1920 x 1080 Aspect Ratio: 16:9 (widescreen) Touch: 10-point multi-touch Durable display
CPU & Wireless	4th generation Intel® Core™ i5 Processor TPM Chip for enterprise security Wireless: Wi-Fi (802.11a/b/g/n) Bluetooth 4.0 Low Energy technology
Battery Life	7-15 days idle life Charges in 2-4 hours with included power supply
Camera, Video & Audio	Two 720p HD cameras, front and rear-facing Microphone Stereo speakers with Dolby® sound

Ports	Full-size USB 3.0
	microSDXC card reader
	Headset jack
	Mini DisplayPort
	Cover port
Sensors	Ambient light sensor
	Accelerometer
	Gyroscope
	Magnetometer

<https://www.microsoft.com/surface/en-us/products/surface-pro-2>

Appendix 11

Seagate Wireless Plus Hard Drive

Interface: WiFi, USB 3.0
Capacity: 1 TB
Width: 89.00mm
Length: 127.00mm
Height: 19.9mm
Typical Weight:0.272kg

Use the Wireless Plus Mobile Storage as a Wi-Fi hub and share a single existing Wi-Fi Internet connection with up to 7 tablets, smartphones and computers.

Access your cloud files anytime, even when you're offline.

Synchronise with your Dropbox® or Google Drive automatically.

Wireless Plus allows up to eight tablets and smartphones to access and store content at the same time

<http://www.seagate.com/www-content/product-content/goflex-fam/wireless-plus/en-gb/docs/wireless-plus-ds1771-2a-1406apac.pdf>