Rapid scoping review of evidence of best practice in the design and delivery of self-harm and suicide prevention training

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1 Lay Summary

This report highlights the findings of a scoping review, which is a search of published and unpublished studies. This review was done to investigate best practice in suicide and/or self-harm training and understand what impact the training has on individuals and if it helps to lower suicide and/or self-harm levels.

To be included in the review, studies needed to have met a set of keywords that were agreed with people with personal experience of the impact of suicide and self-harm. From this search we found 34 studies from across 35 papers in total. These 34 studies were undertaken within the United Kingdom, with most taking place in England. Most of the studies found that suicide and/or self-harm training was offered to, and completed by, people working in a healthcare setting. Other settings were included in some studies, for example in schools, universities, and prisons. The results show that suicide and/or self-harm training can have a positive effect on the attitudes of people who receive the training. These attitudes relate to their thoughts and views on suicide and self-harm. Only one of the studies looked at whether the training made a difference to suicide levels and this study did not find evidence that training reduced suicide levels. The results show that few studies developed their training based on Health Education England's competency frameworks for self-harm and suicide prevention which are the standards that have been agreed for this type of training. Kirkpatrick's model of evaluation identifies four levels of the impact that training can have. Again, few studies reported wider impacts of training such as reducing suicide and self-harm rates overall.

It is recommended that when future training is designed, it is done so using the Health Education England frameworks. We also suggest that future studies in this area should aim to determine the direct impact of the training on suicide and/or self-harm levels.

2 Background

2.1 Current policy context and strategy

Current statistics highlight that every year approximately 800,000 people take their own life worldwide with many more attempting suicides[1]. The World Health Organisation (WHO) report that someone taking their own life is the second leading cause of death among people aged 15 to 29-years old [1]. In2013, the WHO set a goal of reducing suicide rates by 10% by 2020 [2]. This was supported in 2014 by the WHO report, '*Preventing suicide; a global imperative',* which offered a global knowledge base and guidance on the development of national suicide prevention strategies. This report acknowledged that strategies consisted of '*universal'*, prevention strategies, designed to have broad reach across populations, *'selective'* strategies targeting vulnerable groups by training *'gatekeepers'* who provide support to those vulnerable groups, and *'indicated'* strategies which included providing education and training to health workers. This indicates a clear focus on the need for education and training as an embedded component of suicide prevention strategies. In 2018, a further WHO report [3] detailed the progress and examples of good practice in national suicide prevention strategies. This report recognises the provision of training as one of the key ingredients of the success of the Scottish Governments 'Choose Life' strategy, which led to suicide rates fall by 20% between 2002-2006 and 2013-2017.

In England in 2012 a cross government strategy '*Preventing Suicide in England'* [4] outlined a set of objectives and six key areas for action to reduce suicide rates. Whilst training is referred to throughout this strategy document it was not specifically identified as a targeted action. In 2019 however, the Government invested £2million in funding for the Zero Suicide Alliance for two years to develop tools, including training to prevent suicides [5]. This suggests that the integration of education and training as an embedded component of suicide prevention strategies which is developing prominence.

2.2 Training and competency frameworks

Health Education England (HEE) and the National Collaborating Centre for Mental Health (NCCMH) have developed a series of self-harm and suicide prevention frameworks [6]. The competency frameworks reflect best practice and are intended to be used in a variety of ways including the development and evaluation of training. A

competence framework describes some of the important elements that a skilled professional, or member of staff, needs to have to be able to support people who self-harm or have suicidal thoughts. Figure 1 highlights the characteristics that someone should have, who is supporting someone who has, or has the potential to partake in self-harm, have suicidal ideation or have attempted suicide. These include having the correct attitudes, knowledge and skills and to be able to use judgement.

Figure 1: Competence frameworks core characteristics

Three competence frameworks have been developed and focus on:

- **Working with children and young people** for professionals across a broad range of backgrounds and experiences, including professionals and volunteers who work in mental health, physical health and social care, as well as those who provide care and support in other settings such as schools, colleges, universities or other youth welfare settings.
- **Working with adults and older adults** for professionals across a broad range of backgrounds and experiences, including professionals and volunteers who work in mental health, physical health, and social care.
- **Working with the public for people of all ages living in the community** brings together the evidence of 'what works' in this area across these diverse settings. It identifies the knowledge and skills needed by both individuals and organisations in the wider workforce to prevent self-harm and suicide.

Currently within the UK, there is a range of education and training programs available that are undertaken by individuals from a variety of different settings. In an evaluation of Lancashire and South Cumbria's suicide prevention programme, for example, it was highlighted that in this region there were 164 training and education

programmes being delivered between July 2019 and March 2020 [7]. However, the training and education programmes differed in terms of target audience and the duration of training. A similar review undertaken in Cheshire & Merseyside identified that over two thirds of survey respondents (n=145) identified over 40 suicide prevention training courses, with only four courses specific to self-harm [8].

There is a breadth of self-harm and suicide prevention training available which varies significantly depending on the context and audience receiving it. For example, HEE has developed a range of basic online learning resources to help prevent suicide and self-harm. These programs involve learners completing knowledge checks throughout the learning process. Another example is the STORM® skills training package, which aims to increase confidence and competence by improving communication skills in the context of self-harm, and suicide. The STORM® package is well supported by empirical research and can be adapted for a range of different audiences and settings. Due to the range of training available, with significantly different characteristics including delivery method, content, length and more, it is important to establish what works and what does not within self-harm and suicide prevention training.

It is important to be able to understand the impact and effectiveness of any training provided from a basic measure of how individuals react to the training, through to more complex measures of outcomes such as return on expectation by demonstrating the organisational value of training. To this end Kirkpatrick's model of evaluation [9] offers a useful framework for measuring outcomes of training. Table 1 illustrates the four levels within the model.

Table 1: Kirkpatrick's model of evaluation

Level 4: Results	The degree to which targeted outcomes occur because of the training and the support and accountability package
Level 3: Behaviour	The degree to which participants apply what they learned during training when they are back on the job
Level 2: Learning	The degree to which participants acquire the intended knowledge, skills, attitude, confidence and commitment based on their participation in the training
Level 1: Reaction	The degree to which participants find the training favourable, engaging and relevant to their jobs

2.3 Rationale for this scoping review

The North East & North Cumbria Integrated Care System Suicide Prevention Network (NENC ICS SP) has seven priority work streams. One of which is to develop system wide competency. This scoping review aims to support this workstream by developing a quality assurance framework to support the development and implementation of a tiered programme of self-harm and suicide prevention training, skills development and awareness-raising.

The Suicide Prevention Network's (SPN) expected overall outcomes are:

- to reduce the number of suicides including in high-risk groups, and by a minimum of 10% by 2021, in all areas across the ICS;
- to reduce the incidence of self-harm and repeated self-harm; and
- to reduce the impact of self-harm and suicide.

The SPN is currently rolling out a plan to evaluate its interventions to date. This includes evaluation of the development of system wide competence and compassion. Ensuring that people across the system have the confidence, knowledge, skills and compassionate attitude to be able to support people effectively who self-harm and/or are suicidal, relevant to their role and context.

This regional approach can enhance the likelihood of achieving the expected outcomes by:

- sharing expertise and bringing together good practice across the region,
- avoiding duplication/sharing good practice,

- providing consistency across the ICS, and
- undertaking evaluation to include process measures, qualitative measures, and quantitative measures. These will help inform future service delivery and sustainability beyond 2020/21. The programme of work is at scale, from small local projects to whole system change, with evaluation at multiple levels.

The development of a quality assurance framework for training will serve to:

- share expertise and good practice in suicide prevention training across the region,
- ensure training is consistent with the HEE competency frameworks[10-12], and
- ensure training has clearly articulated evaluation strategies to support evaluation both qualitatively and quantitatively.

The SPN recognise that currently there is a wide range and diversity of self-harm and suicide awareness and suicide prevention training available across the NENC region. In wanting to develop a consistent, multi-agency approach to system wide learning and development, informed by the HEE competency frameworks for self-harm and suicide prevention [10-12], they commissioned this rapid scoping review to establish evidence of best practice in the design and delivery of self-harm and suicide prevention training. The SPN would like to be able to assure the quality of the training available to ensure that it meets the standards as set out in the HEE competency frameworks while being clear whom the training is aimed at.
The SPN are also keen to determine the impact and outcomes of training provided across the region, as this is currently unknown. The results of the scoping review will be used to inform the development of a quality assurance framework/tool that will be used to audit suicide and self-harm training commissioned by the SPN.

2.4 Aim and objectives

The aim of this scoping review was to identify and collate the available evidence that highlights the best practice in the design and delivery of education and training for people who require self-harm and suicide prevention training.

To achieve the aims of the scoping review, the following objectives were set:

1. to collate available evidence on the range of suicide and self-harm prevention training in the UK from clinical and non-clinical settings,
2. to understand the type of training available, and its effectiveness and acceptability, and
3. to understand the impact that the training has on suicide and self-harm prevention.

3 Methods

Scoping reviews synthesise evidence on a particular and usually, broad topic area. A framework has been developed for conducting scoping reviews as outlined by Arkesy and O'Malley (2005)[13] which was utilised in this review:

- Step 1: Identify the research question— the question should be clearly defined and broad in scope to provide extensive coverage.
- Step 2: Identify relevant studies— develop a thorough search strategy, which is also broad in scope. This will enable all potentially relevant papers to be identified.
- Step 3: Study selection— selecting literature, which answers the research question, can include using post hoc, or modified, inclusion and exclusion criteria.
- Step 4: Chart the data— extracting the data from the included literature. This involves identifying and extracting the relevant information from the reviewed literature.
- Step 5: Collate, summarize, and report the results—the description of the scope of the literature is commonly presented in tables and charts according to key themes.
- Optional Step 6: Consultation exercise—in this optional step, stakeholders outside the study review team are invited to provide their insights to inform and validate findings from the scoping review.

This process was followed throughout the duration of the rapid scoping review to ensure a more systematic structure. This review is also reported in line with the PRISMA-P framework, which can be found in Appendix 1.

3.1 Eligibility criteria

To be included in the study, papers were sifted in line with the inclusion and exclusion criteria documented within Table 2.

Table 2: Inclusion criteria

Inclusion criteria
English language only
Based on research from the United Kingdom
Focus on a training or education programme based on suicide and/or self- harm prevention
Must be training or education provision for suicide and self-harm prevention for adults, older people, children and young people, or the public as specific populations identified in the HEE competency frameworks

3.2 Information sources and searches

Keywords were generated by reading the literature in the field to understand commonly used keywords, as well as consulting with mental health professionals who work in the field of self-harm and suicide. Patient and public involvement (PPI) groups were also approached to gain an insight from people with lived experience of suicidality. The PPI process provided researchers with additional keywords and terms for suicide and self-harm.

Appendix 2 documents the Table of Search Terms and Keywords that were used to search the databases. Searches consisted of a combination of keywords based on training/education provision, suicide and self-harm, and outcomes of the training.

When undertaking a scoping review, searches for relevant literature can include electronic databases, reference lists, hand searches, and grey literature [13]. Grey literature can include for example, conference abstracts, presentations, and working papers. Therefore, an academic librarian was consulted to confirm the suitability of the keywords, as well as the appropriate databases to search. Following librarian guidance, the following were therefore searched:

- EBSCO: CINAHL, PSYCHINFO and MEDLINE databases,
- OVID: EMBASE database,
- a grey literature search of the first 100 hits on Google, and
- a grey literature search of the first 100 hits in MEDNAR.

Reference lists of included papers were also searched for any additional articles.

3.3 Selecting suitable sources and data charting

Upon running the database searches, all retrieved papers were exported into Endnote, which is a software management programme for managing references and citations. The Endnote library was searched for duplicate papers, with any duplicates being removed at this point. Following de-duplication, the sifting process comprised of two parts: 1) checking the title and abstract of included papers against the inclusion and exclusion criteria, and if included would go forward to part 2, and 2) checking the remaining full papers against inclusion and exclusion criteria.

Within the title and abstract sifting stage, one reviewer (RL) sifted all references against the inclusion criteria. Six reviewers (KB, JR, ELG, SF, PT and JB) second sifted the papers against the same criteria to check for consistency. Each reviewer, except ELG and SF, double checked 4% (n=121 records) of RLs decision. ELG and SF shared the remaining 4%. At this stage, there was an overall agreement rate of 88.08%. Any disagreements were resolved through discussion.

The second stage of sifting was undertaken by two reviewers (KB and RL) who each sifted half of the results. Additional members of the review team also second-sifted 20% of the full papers to check for consistency (AR, ELG, GJM, JB, JR, JH, PT and SF). At this stage, there was an overall agreement rate of 80.28%. Again, any disagreements were resolved through discussion.

3.4 Data extraction

Following final inclusion, all included papers were data extracted (by all team members) to ascertain the key information from each paper which was relevant to the aims of the scoping review. Data extraction information focused on: author, year of publication, country of origin, training setting, participants receiving the training, methods used, training characteristics (e.g., format of the training, including duration and topics), and training outcomes. All data extracted was double checked by two reviewers (ELG, JB).

3.5 Synthesis of results

Content analysis is one approach for analysing the data obtained through scoping reviews. Content analysis can be used to synthesise data from both quantitative and qualitative studies [14]. This analytical method was chosen, and involved counting how

often each category or theme occurs in order to identify dominant findings and make generalizations [15]. This enables reviewers to identify key findings [15]. As the categories were developed *a priori*, this enabled multiple people to analyse/code papers concurrently, as the categories were defined and were mutually exclusive [16]. The content analysis was framed around Higher Education England's core competencies for suicide and self-harm training, and the Kirkpatrick model of training evaluation.

3.5.1 Health Education England analysis mapping

During the mapping of the HEE competencies a decision had to be made regarding the extent to which each of the studies' characteristics and content of the training met each HEE competency framework. For this, a Red, Amber, and Green (RAG) rating scale was applied (please see Table 3 in section 4.6, for an explanation of the RAG scale).

We defined meeting each competency as either 'fully', 'partially' or 'not at all'. A rating of 'partially' was given when the study paper outlined a description of the training that suggested that some components of the competency were met (but not all). In many of the instances, study papers may not have specifically stated that they were addressing a competency directly, rather our interpretation of the paper suggested a partial meeting of HEE criteria. The following examples will illustrate how these decisions were made.

Example 1: Appleby et al. (2000)[17] involved elements of role play, feedback and discussion. The decision to assess the paper against the HEE competencies for addressing attitudes, values and styles of interaction and communication skills as 'partial' was because certain elements, including participants engaging in discussion and reflection about how attitudes, values and styles of communication would have an influence on suicide/self-harm prevention, were reported, but the study did not specifically state that this was related to addressing these competencies and did not justify in detail the importance of addressing this competency.

Example 2: Crawford, Turnbull & Wessely (1998)[18] deemed to partially meet the competency of providing specific interventions by mental health professionals and a structure of care and intervention. The study commented upon aspects of the

assessment of patients and identification of those at risk, difficulties and management of assessments, service provided by the parasuicide team and discussion of issues raised by participants. However, again, the study did not state that they were addressing this competency explicitly.

If a study did not provide any information on the content of the training related to elements of the HEE competencies, then it was judged to not meet the HEE competency. For example, in Gray et al (2019)[19] there was no mention of basic knowledge of issues related to self-harm and suicide, and therefore this was deemed not to meet the competency.

However, if a study did explicitly state elements that met HEE competencies, this was judged as meeting the competency 'fully'. For example, the play utilised in one study by Stephens, Short and Molodynski (2011) [20] explored a 15-year-old girl using self-harm as a coping mechanism. The workshop was judged to fully address issues related to attitudes, values, and style of interaction, as the play considered this competency.

3.5.2 Kirkpatrick model analysis mapping

In addition to mapping the content of the included studies to the HEE competency frameworks, additional mapping was undertaken to Kirkpatrick's training evaluation model. The Kirkpatrick model has four levels against which training can be evaluated. The first level, 'reaction', measures how participants respond to training they receive. In the current review the studies were mapped onto this level of the model if they measured some aspect of trainee satisfaction with the training. This included suitability of the venue and time, perceived usefulness, enjoyment, relevance, and responses to content, teaching methods, and general engagement.

The second level focuses on what trainees have or have not learned because of the training. Included studies were mapped to this level if they measured knowledge, skills, attitudes, or confidence, often in a pre-test-post-test approach.

The third level focuses on behaviour and behaviour change because of the training and the way trainees apply the skills, knowledge, confidence, or attitudes developed in training to their practise. Studies were mapped to this level if they assessed effect on practice. This includes accurate and complete record keeping, identification,

assessment and management of suicide risk, increased confidence in engaging with suicidal individuals and increased likeliness to intervene with someone at risk of suicide.

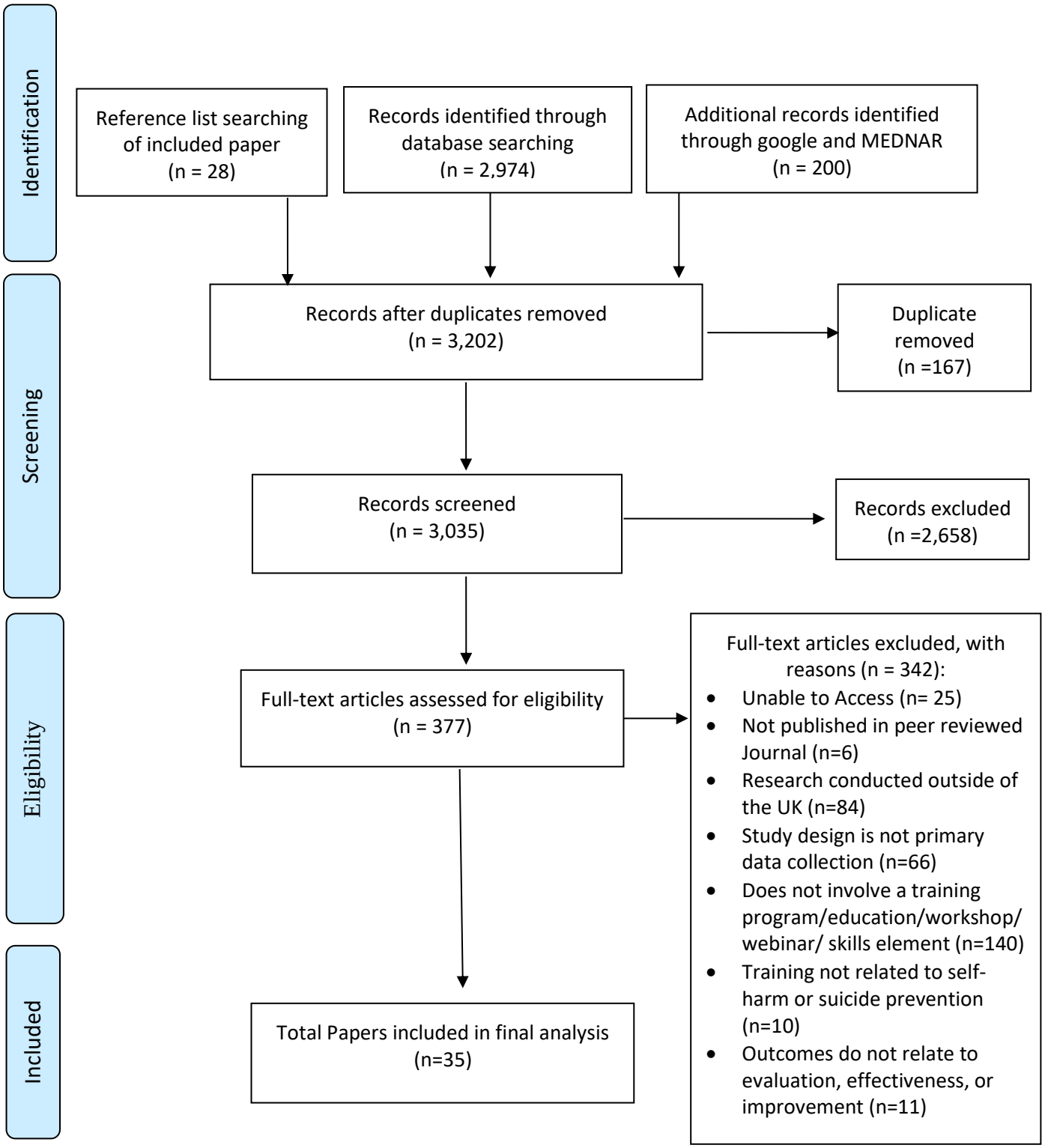
The fourth level explores the wider impacts that training may have. Included studies were mapped to this level if they examined suicide rates, repeated self-harm incidences, impact on stigma or awareness, multi-agency working, economic impacts and organisational impacts.

4 Results

Initial searches yielded 3,202 references. As a result of sifting, 34 studies were included in the final scoping review for analysis [16-50]. Robinson, Braybrook, and Robertson had two papers published based on the same study. Throughout the analysis these two included papers have been reported as one study.

Figure 2 shows the included papers in the PRISMA flowchart.

Figure 2: PRISMA flowchart



4.1 Study characteristics

A summary of the included studies is provided in the Table of Included Studies in Appendix 3.

To summarise, the included studies were conducted over a period of 24 years, spanning 1996-2020. All studies included were conducted within the UK; nine were conducted in Scotland [25, 28, 30, 42, 43, 46-48, 51], one in Wales [19] and 17 in England [16-18, 20-22, 24, 26, 27, 29, 32, 36, 38, 39, 44, 45, 50]. The remaining eight were in the UK but specific locations were either not given, or it was unclear [23, 31, 33-35, 37, 40, 41].

The training provided in the included studies focused on many aspects of suicide and/or self-harm. This included: exploring attitudes, skills, confidence or management of deliberate self-harm or suicidality [17-19, 23-37, 40, 41, 44-48, 50, 51]; public awareness campaigns on suicide [39, 42, 43]; the impact of patient psychological intervention following deliberate self-harm or suicide attempt [21]; awareness of mental health difficulties (including deliberate self-harm) [20, 38]; the impact of staff suicide prevention training on suicide rates [16]; and evaluating positive mental health programmes [22].

4.2 Recipients of training

Across the 34 included studies, a total of 3,591 individuals received suicide/self-harm training where specified. For one paper, the specific number of people involved in the study was not explicitly indicated [39]. The total recipients for each paper, its category, and sub-category have been provided in Appendix 4, within the Table of Recipient Characteristics. These have been reported within three general categories, which map to the HEE core competency frameworks [10-12]:

- Category 1: children and young people [34 20, 38].
- Category 2: adults and older people with two subcategories: Healthcare [16-19, 21, 23-25, 27, 28, 31, 35-37, 40, 41, 44] and higher education [22, 29, 30, 32, 33, 45, 47].
- Category 3: community and public health [39, 42, 43, 46, 48, 50, 51].

Category one consisted of secondary school pupils and staff, and children's nurses receiving the training. For category two, and specific to healthcare, this consisted of a combination of primary care accident and emergency (A&E), and mental health

service staff, healthcare staff, child, and adolescent mental health services (CAMHS) clinicians, administration, and volunteer staff. For category two, specific to higher education, this included recipients being a combination of higher education staff, first year adult, child, and mental health nursing students, second year mental health nursing students, adult nursing students, university students, veterinary students, and an academic director of studies. Category three consisted of public, various, and prison staff.

The reporting of demographic information was found to be limited and inconsistent across the included studies. Only 18 papers (17 studies) from the 34 included studies reported a combination of sex, age, or age range [19, 21, 23, 26-29, 32-34, 37, 38, 42, 43, 47, 48, 50, 51]. From these 17, the total number of males was 773, compared to 1,505 females, who received the training. The average age of training recipients was 36 years, with a minimum and maximum age of 21 and 44 years respectively. Of those papers that reported the age as a range only (as opposed to an average), the range spanned 14-66 years.

4.3 Characteristics of training

The characteristics of the training are divided below into four sections: 1) length of training, 2) setting of training, 3) the methods used to deliver the training, and 4) content of the training.

4.3.1 Length of training

Across the 34 included studies, the length of training ranged from one 45-minute session [29] through to 96 hours [51]. The length of training and overall timeframe for training is detailed in the Table Detailing Training Length in Appendix 5.

4.3.2 Setting of training

Training was provided across a variety of locations. Most studies delivered training in the healthcare setting (to 1,842 participants), followed by community and public health settings (participants n=1,119), children and young people settings (participants n=268), and in higher education settings (participants n=362).

In healthcare settings there were various locations for training, but specific locations included for example A&E departments, Minor Injuries Units (MIUs) and Medical

Admission Units (MAUs) [18, 21 23, 31, 35]. Generic mental health care settings were also provided with training [17 24 27], which included one study specifically in a CAMHS settings [19] and a National High Secure Healthcare Service for Women [41]. Additionally, there was one study undertaken in a maternity healthcare setting [44]. In addition, a further five studies were conducted where the specific location was unspecified [16, 28, 36, 37, 40].

Training was delivered in higher education settings in eight studies [22, 26, 29, 30, 32, 33, 45, 47] and two were delivered in educational settings [20, 38].

Finally, community and public settings were also used in five of the studies [39, 42, 43, 46, 48, 51], with one delivering training in a prison setting [50].

4.3.3 Method of delivery

Training was delivered using a variety of methods and mediums. Five studies used presentations, role play and group work [23, 24, 30, 33, 44]; three delivered training using presentations only [18, 22, 29]; three studies used presentations, role play and feedback [25, 28, 50]. Two studies used presentations, role play and reflections [26, 31]; and two studies (contributing three papers) used a public awareness campaigns [42, 43, 46].

One study used presentations, role play, group work and feedback [27]; one study each used presentation skills and training [47]; presentations and group work [36]; presentations and role play [17]; presentations, case studies and reflections [41]; presentations and reflections [40]; simulation and reflection [45]; simulations only [32]; group work, presentations and a workbook [49]; presentations, role play, observations and reflections [48]; interview skills, role play and feedback [37]; theatre performance, group work and storytelling [20]; reusable learning objectives [34]; notice boards [35]; leaflets [39]; motivational interviewing [21]; and workshops [38]. Two studies did not give specific information on the method of delivery [16, 19].

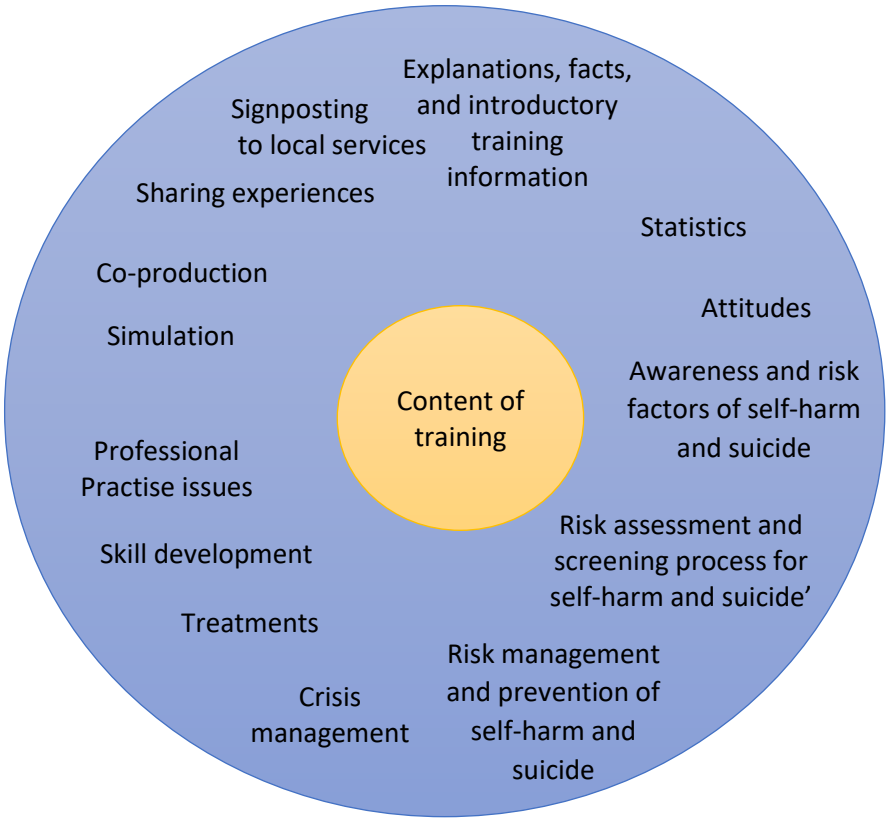
Twenty-six studies delivered training in a group format [17-20, 22-28, 30-33, 36-38, 40, 41, 44, 45, 47-50]. One study delivered one-to-one sessions [21]; four studies involved training which was asynchronously delivered as part of digital delivery [34], notice boards [35] leafleting [39] or public awareness campaigns [42, 43]; and three studies did not specify how the training was delivered [16, 29, 46].

Eight of the included studies delivered training as a single session [20, 24, 26, 29, 32, 33, 44, 45], whereas 20 studies delivered multiple sessions [17-19, 21-23, 25, 27, 28, 30, 31, 33, 36-38, 40, 41, 48-50]. One study delivered the training as both a single session and multiple sessions dependent on the recipient [47], whereas 20 studies delivered multiple sessions [17-19, 21-23, 25, 27, 28, 30, 31, 33, 36-38, 40, 41, 48-50].

4.3.4 Content of training

Three papers did not provide detailed explanation of the content of the training [35, 47, 50]. However, in order to classify the training, 14 broad overarching categories were developed (see Figure 3). One element of training, in each of these three papers, did not fit within the categories however, these elements were: assessment of actor role-playing scenarios, practicing feedback reflection, and the political and research context (see Appendix 6) [24, 31, 44]. Each specific category has been described in more detail below and is shown in the Content of Training table in Appendix 6.

Figure 3: Key content covered in the training



Within the category of 'explanations, facts and introductory training information', nine studies provided content which focused on explaining and defining self-harm and

suicide, facts on suicide and generic introductory information [26, 29, 34, 36, 39-41, 46, 49]. Three studies highlighted statistics on prevalence of those in crisis and suicide [30, 36, 42, 43].

In the category of 'attitudes', five studies discussed the attitudes of the attendees, perceived attitudes of others, and the aim of challenging negative attitudes towards self-harm and/or suicide [36, 39, 42, 43, 48, 49].

Within the category, 'awareness and risk factors of self-harm and suicide', ten training programmes addressed these [18, 20, 22, 29, 38-44]. This included general risk factors [39] and causes [29, 40] as well as mental health issues [38, 44], and the influence or impact that family relationships, isolation and self-esteem can have on self-harm or suicidality [20].

In total, 17 studies were categorised under the 'risk assessment and screening process for self-harm and suicide', for delivering training on the assessment and screening of self-harm and suicide risk for those in professional roles [16-19, 24-26, 31, 34, 36, 37, 39, 40, 44, 46-48].

The following papers covered assessment processes generally [16-19, 24-26, 31, 34, 36, 37, 39, 40, 44, 46-48], of patients and identification of those at risk [18], of deliberate self-harm [24] and suicide risk within the training for professionals, and assessment and screening of self-harm and suicide risk [17, 24, 26, 31]. Four papers covered screening for mental health problems and suicidal thoughts [17, 39, 44, 48], while six discussed clinical components of screening and the instruments and documents used [19, 31, 36, 40, 46, 47].

Within the category of 'risk management and prevention of self-harm and suicide', 11 studies were identified [17, 20, 22, 26, 31, 33, 34, 40-43, 49]. Five studies within this category highlighted coping mechanisms and self-help methods for the individual [20, 22, 33, 40, 41], as well as professional considerations [17, 20, 26, 31, 34, 42, 43, 51].

'Risk management and prevention of self-harm and suicide' including coping mechanisms, and self-help methods for individuals was highlighted in training provided in five papers [20, 22, 33, 40, 41], as well as professional practice issues [17, 20, 26, 31, 34, 42, 43, 51], and crisis management for professionals [16, 26, 37, 48]. Two papers highlighted the specific 'treatments' used in practice to reduce or prevent self-harm

or suicide [23, 41]. One paper discussed issues within professional practice in relation to self-harm and suicide prevention [40], and a further paper discussed the difficulties and management of assessments [18].

Four studies covered 'crisis management' for professionals [16, 26, 37, 48]. Specific training was provided on crisis management [26, 48], and crisis prevention management [16, 26, 37, 48], including for those who are at an immediate risk of suicide [16].

Within the category of 'skills development', nine papers were included [16, 17, 19, 21, 34, 37, 44, 47, 49]. Topics included decision-making on referrals and care planning [44], problem solving [16, 37], effective communication with children and young people [34], clinical management of suicide risk [17], interview techniques [19, 21], formulating and producing risk management plans [19] and responding to letters concerning welfare benefits [21].

Two papers were categorised under 'professional practise issues' [18, 40]. One paper discussed issues within professional practice in relation to self-harm and suicide prevention [40], and one paper discussed the difficulties and management of assessments [18].

Three papers were categorised under 'simulation' [32, 45, 51], and one paper highlighted the importance of co-production [19]. Under the category of 'sharing experiences', two studies focused on sharing personal experiences, professional encounters with self-harm and suicide, as well as celebrity stories [29, 30].

There were six papers within the category of 'signposting to local services', where attendees were signposted to, and provided information on, local services, guidance and support for self-harm and suicide prevention [18, 21, 22, 36, 39, 46], and three papers provided general information on the content delivered during simulation [32, 45, 51].

4.4 Trainer and facilitator characteristics

Thirteen studies did not mention or discuss any characteristics relating to those delivering the training [25, 29, 31, 33-35, 39, 41-46, 48-51]. The remaining 23 studies are discussed below.

4.4.1 Healthcare professionals

In total, nine studies specifically indicated the number of clinically trained healthcare professionals, who were the trainers or facilitators of the self-harm or suicide prevention training. The total number of trainers was 57 across the nine studies.

This included:

- two psychiatric nurses and one psychologist [17]
- two health psychologists [21]
- one nurse practitioner [22]
- twenty nurses, six clinical psychologists, four social workers, four psychiatrists and three occupational therapists [23]
- one consultant or trainee psychiatrist and one senior nurse [24]
- three mental health nurses [27]
- two social or developmental psychologists, one child and adolescent psychiatrist, and a service user from a mental health charity, and the school's head of year [38]
- one midwife and one consultant psychologist [44]
- one Personal, Social, Health and Economic (PHSE) consultant, two Child and Adolescent Mental Health Services consultants and one primary mental health specialist [20].

One study highlighted that the trainers were three mental health professionals [16]. However, two studies provided the specific number of trainers, but did not specify the numbers of trainers per profession. For instance, one highlighted there were 12 facilitators which came from "*mental health services, and the majority of these were nurses, however others trained included psychologists, social workers, managers and a service user*" (p. 2)[28]. Another indicated that alongside a research fellow, nurses from the parasuicide team were used to deliver the training [18].

4.4.2 Academic lecturers

One training session was delivered by a Professor of Mental Health [36] and another was delivered by a Professor of Primary Care Psychiatry [50]. In one study, one mental health field lecturer and one children's field lecturer led the training sessions [32].

4.4.3 Other trainers

One study reported that the training was delivered by a Professor [50]and a STORM coordinator [50]. One study stated that trainers were trained in SafeTALK or ASIST [46], in addition, a further study highlighted that facilitators were expert ASIST trainers [30]. One study indicated that the training was delivered by an experienced trainer from the Scottish Association of Mental Health [47]. Four studies highlighted that the training was delivered by the authors of the paper, but no specific characteristics were provided [19, 26, 37, 40].

4.5 Outcomes of training

The studies included in this review cover a range of outcomes and measures of success which are highlighted in the Table Detailing Outcomes of Training shown in Appendix 7. Some studies employed multiple outcome measures to measure/evaluate training 'success' whereas others used only one outcome measure.

4.5.1 Skills and practice measures

Eighteen of the included studies evaluated the impact that training had on participant's skills or practice [17-19, 24-27, 30, 31, 34, 37, 41, 44-49].

Thirteen studies used impact on practice to evaluate effectiveness of training [17, 19, 25, 26, 31, 37, 39, 40, 44, 46-48, 51]. Four of the seventeen studies specifically explored STORM training and evaluated the outcome on clinical practice and management of suicidal clients [25-28].

A range of outcome measures were used to measure skills and practice across included studies: four studies used videotaped assessment pre- and post-training to rate performance and improvement in skills and practice [17, 26, 27, 37]; two studies used the Suicide Intervention Response Inventory (SIRI 2) [24, 27]; four studies used non-specified self-rating scales [18, 31, 41, 49]; seven studies used feedback, either written or verbal, in the form of surveys, interviews or focus groups to explore the impact training had on participants perceived skills or practice [19, 25, 30, 41, 45-47]; one study used the Continuing Professional Development Reaction Questionnaire to explore training impact on practice and development [34]; and one study used an unspecified assessment tool to examine the training's impact upon participant skills and practice [44].

4.5.2 Skills and practice outcomes

Seven studies found training demonstrated significant improvements in skills and practice outcomes or at least partial demonstration [17-19, 24, 31, 34, 37], whilst some showed improvements on only some subscales or in only certain groups [17].

Seven studies found training demonstrated significant improvements in skills and practice outcomes at least partially [17-19, 24, 31, 34, 37], whilst some showed improvements on only some subscales or in only certain groups [18, 19, 24, 31].

One study found no differences between pre-and post-training [27]. Nine studies showed a positive impact on perceived skills and practice although there were no significance values presented/applicable [25, 26, 30, 41, 44-47, 49].

Sixteen studies identified at least some improvements specifically relating to various aspects of practice [17, 18, 27], [19, 25, 26, 28, 31, 34, 37, 41, 44, 46-49]. One study found no significant improvement to practice post-training [24].

4.5.3 Attitudinal outcome measures

Fifteen of the studies used attitude change as a way of measuring the effectiveness of the training [17, 18, 26-29, 32, 34-36, 40, 42-44, 49, 50].

Attitudes were primarily measured using interviews and self-reported methods, with two of these measures developed specifically for the studies by the respective authors [17, 18]. Four studies exploring STORM training used the Attitudes to Suicide Prevention Scale (ASP) [26-28, 50]; two studies used the Self-Harm Antipathy Scale (SHAS)[29, 40]; one study used the Modified Suicide Opinion Questionnaire (SOQ) [35]; and four studies used an unspecified self-report measure [32, 34, 36, 42, 43]. Focus groups were used to explore attitudes in one study [30], and two of the papers did not specify the measures used to examine attitudes [44, 51].

4.5.4 Attitudinal outcomes

Eleven studies found significant improvements in at least some facets of the attitudinal measures [17, 18, 27 26, 28, 29, 50 32, 34, 36, 40]. Three studies highlighted that training helps in reducing/challenging stigma [42, 43, 46, 49]. Only one study found no significant improvements from the attitudinal measure used [35].

4.5.5 Confidence and/or self-efficacy outcome measures

Seventeen of the studies measured confidence as a means of evaluating the training provided [17, 19, 20, 24, 26-28, 31, 32, 34, 37, 41, 44, 46, 48-50]. Ten studies used self-rating scales or questionnaires to measure confidence [17, 24, 26-28, 31, 32, 37, 41, 50]. Out of these 10, one study [37] used the suicide response inventory (SIRI-2) to measure confidence. Five studies used written or verbal feedback (via survey, focus groups, or interviews) to measure confidence [19, 20, 46, 48, 49], and one study used an unspecified assessment tool [44].

Three of the included studies measured self-efficacy as a means of evaluating the success of training [32-34]. This was measured in two studies using the Self-Efficacy Towards Helping (SETH) scale [32, 34] and the General Perceived Self-Efficacy (GPSE) Scale in one study [33].

4.5.6 Confidence and/or self-efficacy outcomes

Nine studies demonstrated statistically significant improvements in confidence [24, 26-28, 32, 34, 37, 41, 50]. Six studies demonstrated improvements in confidence, but no significance level was reported [20, 31, 44, 46, 48, 51]. One further study demonstrated no significant improvements in confidence [19].

Two studies highlighted a significant improvement in self-efficacy [32] and one study [33] showed an increase in self-efficacy however no significance was reported. One study [34] demonstrated a reduction in self-efficacy following training.

4.5.7 Satisfaction outcome measures

Eighteen of the included studies used participant satisfaction with the training as an outcome measure [17, 19, 22, 24, 26-28, 30, 34, 39, 41, 44-50]. In all studies satisfaction with training was measured using participant feedback including questionnaires/feedback forms and/or interviews/focus groups [17, 30, 34, 39, 41, 45, 48, 49]. One study looked at satisfaction with training as a general outcome [47].

One study explored the suitability of the location and time of the training as an outcome measure [22]. Ten studies either set out to measure, or received feedback, regarding other facets of satisfaction, including whether recipients found the training useful or practical [19, 22, 24, 26-28, 39, 45, 48, 49], interesting/enjoyable [22, 26-28, 41, 44];

informative [22, 41]; or relevant [17, 28, 34, 41, 49, 50]. Only one study highlighted a specific tool used to measure satisfaction which was the attitude to training scale [45].

4.5.8 Satisfaction outcomes

Seventeen studies reported mostly positive feedback towards training [17, 19, 22, 24, 26-28, 30, 34, 39, 41, 44, 45, 47-50]. One paper mostly reported potential improvement suggestions for the training within the study [46].

4.5.9 Knowledge and/or awareness outcome measures

Twelve of the included studies measured knowledge and/or awareness as a means of evaluating the success of training [18, 20, 22, 28, 31, 34, 38, 42-44, 46, 50, 51].

Thirteen of the included studies measured knowledge and/or awareness as a means of evaluating the success of training [18, 20, 22, 28, 31, 34, 38, 42-44, 46, 50, 51].

Six of the studies used a questionnaire [18, 20, 34, 38, 42, 43, 50]; four of the studies used a self-rating scale to measure knowledge and awareness [20, 22, 31, 51] ; three of the studies used qualitative approaches to exploring knowledge and awareness and used interviews/focus groups [42, 43, 46, 51]; two of the studies used a specific tool to measure knowledge or awareness, one being the Mental Health Questionnaire (MHQ) [38] and one being the Awareness of Suicide Risk Issues (ASRI) scale, which was developed for the study [50]. One study did not specify a knowledge/awareness outcome measure [44].

4.5.10 Knowledge and/or awareness outcomes

Recipients in 11 studies felt that as a result of the training that they understood issues, and/or had improved knowledge or awareness [18, 20, 22, 31, 34, 38, 42-44, 46, 50, 51].

4.5.11 Clinical outcome measures

Two studies measured clinical outcomes to establish training effectiveness [21, 23]. A variety of clinical symptoms were measured including depression, anxiety, and social functioning. These were measured using various scales including the General Anxiety Disorder Questionnaire (GAD-7) [21], Montgomery-Asberg Depression Rating Scale (MADRS), Hospital Anxiety and Depression Scale (HADS) [23] and Social Functioning Questionnaire (SFS) [23].

Other patient outcomes included were the Patient Health Questionnaire (PHQ-9), Financial Self Efficacy (FSES) and Quality of Life scale (EQ5D-5 L) [21]. One study measured recurrent self-harm measured using the Parasuicide History Interview (PHI) [23].

4.5.12 Clinical outcomes

One study shows improvement across all clinical outcomes (GAD-7, PHQ-9, FSES, EQ5D-L) [21]. Another study, found that only the MADRS results showed significant findings at six months, but at 12 months the MADRS, BAS, GAF all displayed significant results [23]. However, there were no significant differences in SFS, and the HADS found no significant differences between therapist competence and incidences of self-harm in the following 12 months [23].

4.5.13 Suicide outcome measures

Only one study measured population suicide rate [16]. This was measured using estimated suicide rates (per 100,000) for the local health authority.

4.5.14 Suicide outcomes

No evidence was found that suggested STORM training was effective in reducing suicide rate as a result of the training provided [16].

4.5.15 Study follow-up outcome points

One study used a staff survey which was available for three months, but it was not clear when the survey was open for completions [19]. Overall, follow-up periods ranged from three weeks to 18-24 months. Out of the included studies, 22 measured longer term outcomes [16-18, 21, 23-28, 30, 37-40, 42-44, 46-48, 50, 51]:

- nine studies measured outcomes both immediately after training and at a further follow up point [24, 26-28, 41, 46, 47, 50, 51];
- eleven studies only measured outcomes immediately after training [20, 22, 29, 31-36, 41, 45]; and
- thirteen studies only measured outcomes longer term and did not collect data immediately following the training/provision [16-18, 21, 23, 25, 30, 37-39, 42-44, 48].

4.5.16 Study follow-up outcomes

Twenty-one studies demonstrated some level of effectiveness or positive outcomes at follow-up [17, 18, 21, 23-28, 30, 37, 39-44, 46-48, 50, 51].

4.6 Mapping training onto Higher Education England's competency frameworks

As previously discussed in section 3.5.1, we have mapped findings from the included studies to the three HEE competency frameworks for self-harm and suicide prevention [10-12] (see Appendices 8-10). Each of the frameworks focus on supporting different sub-populations, including:

- children and young people in health, social care, and educational settings;
- adults and older people in health and social care settings; and
- all people in general community and public settings.

The characteristics and content of the training for each paper has been rated using a Red, Amber, and Green (RAG) rating scale, to indicate whether they meet the competency as documented within the HEE competency frameworks. The RAG scale that has been applied is shown in Table 3.

Table 3: RAG scale used for the mapping of studies to the HEE frameworks

Colour code	Rating definition
	The competency has not been met within the study.
	The competency is partially met.
	The competency is fully covered by the information documented in the study.

Through the categorisation three studies were assessed against the 'children and young people' framework, 25 studies were assessed against the 'adults and older people in health and social care settings' framework, and six studies were assessed against the 'general community and public settings' framework. Please see Appendices 8, 9 and 10 for a summary of each competency framework.

4.6.1 Children and young people

From the 34 included studies, three studies related to preventing self-harm and/or suicide in children and young people. Of the three papers in this category, none of them met all of the associated competencies in the framework according to the information detailed in the papers (see Table 4). Additionally, none of the studies met the competency areas partially overall. Manning *et al* (2017) [34] meets the framework best, in that only one competency is not met at all, and the rest are either met or

partially met. All three studies fully meet the competencies for knowledge specific to working with children and young people, and knowledge of issues related to self-harm and suicide. Naylor *et al* (2009) [38] meets the least of the competencies overall.

Table 4: Children and young people - competencies mapping

		Naylor et al (2009) [38]	Stephens, Short and Molodynski (2011) [20]	Manning et al. (2017) [34]
Attitudes, values and style of interaction when working with children and young people who have self-harmed and/or are suicidal.				
Core knowledge and skills	Knowledge specific to work with children and young people.			
	Knowledge of issues related to self-harm and suicide.			
	Professional competences: for all workers			
	Professional competences: for healthcare workers			
	Professional competences: for organisations			
	Communication skills			
	Education and training, postvention and liaising with others.			
Intervention skills for mental health professionals	Therapeutic competences			
	Assessment and formulation			
	Specific interventions by mental health professionals			
	Structured care and intervention			
Meta-competences				

4.6.2 Adults and older people

From the included 34 studies, 25 related to preventing self-harm and/or suicide in adults or older people. The training delivered within the 25 papers either focused on healthcare settings or higher education settings. Due to this, the mapping has been divided according to the two settings.

4.6.2.1 Healthcare

Of the 17 papers under the 'healthcare' category (Table 5), none of them met all of the associated competencies in the framework according to the information detailed in the papers. Seven studies demonstrate the most successful compliance with the competency frameworks by partially meeting them overall (a combination of partially or fully meeting each competency) [24, 25, 27, 28, 40, 41, 44]. 'Education and training, postvention and liaising with others' presents as the most consistent partially met competency across the seventeen papers in this category. May (2001) [35] and Morgan *et al* (1996) [36] demonstrate the least overall success in meeting the competencies. Aside from Davidson *et al* (2004), May (2001) [35] and Morgan *et al* (1996) [36]; the competency of 'assessment and formulation' presents as the most consistently fully met competency across the seventeen papers. The 'meta-competencies' is the most poorly met competency in this category.

Table 5: Adults and older people - healthcare competencies mapping

		Barnes et al (2018) [21]	Crawford Turnbull & Wessely (1998) [18]	Davidson et al, (2004) [23]	Fenwick et al (2009) [24]	Gask et al, (2006) [27]	Appleby et al (2000) [17]	Gask, Coupe & Green (2019) [25]	Gask, Lever-Green & Hays (2008) [28]	Gray et al (2019) [19]	Holdsworth, Belshaw, and Murray, (2001) [31]	May (2001) [35]	Morgan et al. (1996) [36]	Morris et al. (1999) [37]	Morris et al. (2005) [16]	Patterson, Whittington, and Bogg (2007) [41]	Robertson et al. (2013) [41]	Ross-Davie, Elliott, and Green (2007) [44]
Attitudes, values and style of interaction when working with people who have self-harmed and/or are suicidal																		
Core knowledge and skills	Basic knowledge of issues related to self-harm and suicide																	
	Professional competences																	
	Communication skills																	
	Education and training, postvention and liaising with others																	
Intervention skills for mental health professionals	Therapeutic competences																	
	Assessment and formulation																	
	Specific interventions by mental health professionals																	
	Structured care and intervention																	
Meta-competences																		

4.6.2.2 Higher education

Of the eight papers in the ‘higher education’ category (Table 6), none of them met all of the associated competencies in the framework according to the information detailed in the papers. Gask *et al* (2017) [26] and Kerr, Martin and Fleming (2018) [33] are the only papers in this category that overall, partially meet each of the competencies in the framework. Heyman, Webster & Tee (2015) [30] and Gibson Carson and Houghton (2009) [29] demonstrate the least success in meeting the competencies in this category, out of the eight papers overall. The competency ‘education and training, postvention and liaising with others’ is the most consistently met competency in this category, and the following are the least successfully met competencies in this category: ‘specific interventions by mental health professionals’, ‘structured care and intervention’, and ‘meta-competences’.

Table 6: Adults and older people - higher education competencies mapping

		Heyman, Webster & Tee (2015) [30]	Gibson Carson and Houghton (2009) [29]	Gask et al (2017) [26]	Kerr, Martin and Fleming (2018) [33]	Burford & Hardy (2019) [22]	Holliday et al., (2020) [32]	Felton et al (2013) [45]	Mellanby et al (2010) [47]
Attitudes, values and style of interaction when working with people who have self-harmed and/or are suicidal									
Core knowledge and skills	Basic knowledge of issues related to self-harm and suicide								
	Professional competences								
	Communication skills								
	Education and training, postvention and liaising with others								
Intervention skills for mental health professionals	Therapeutic competences								
	Assessment and formulation								
	Specific interventions by mental health professionals								
	Structured care and intervention								
Meta-competences									

The distinguishing difference between the healthcare category and the higher education category was the lack of coverage for the competencies associated with intervention skills for mental health professionals within higher education.

The reason for this difference stems from the purpose and audience of the training being directed to healthcare professionals who are viewed as requiring the specific intervention skills needed to therapeutically engage with individuals. Within a higher education setting there was more emphasis on developing the competencies of education and training, postvention and liaising with others, basic knowledge of issues related to self-harm and suicide and attitudes, and values and style of interaction when working with people who have self-harmed and/or are suicidal. The reason for this difference stems from the purpose and audience of the training being directed to healthcare professionals who are viewed as requiring the specific intervention skills needed to therapeutically engage with individuals.

4.6.3 Community and public health

From the included 34 included studies, six related to preventing self-harm and/or suicide in community groups or in the public (Table 7). Of the six papers under this category, none of them met all of the associated competencies in the framework according to the information detailed in the paper. However, Griesbach *et al* (2008) [51], Griesbach *et al* (2011) [48] and McLean *et al* (2007) [46] partially meet the competencies overall. Griesbach *et al* (2008) [51] demonstrates the best concordance with the competencies according to the information detailed in the paper. One study demonstrates the least compliance with the competencies according to the information detailed in the paper [50]. Across the six papers, the following competencies are met with the most success:

- attitudes, values and style of interaction when working with children and young people who have self-harmed and/or are suicidal,
- basic knowledge of issues related to self-harm and suicide, and
- generic communication skills.

‘Professional competencies for individual workers’ present as the least successfully met competency across the six papers in this category.

Table 7: Community and public health - competencies mapping

		Robinson, Baybrook & Robertson (2013; 2014) [42, 43]	Owens and Charles (2017) [39]	Griesbach et al (2008) [51]	Griesbach et al (2011) [48]	Hayes et al. (2008) - Prison setting [50]	McLean et al (2007) [46]
Attitudes, values and style of interaction when working with children and young people who have self-harmed and/or are suicidal							
Core knowledge and skills	Basic knowledge of issues related to self-harm and suicide						
	Professional competences for individual workers						
	Professional competences for organisations						
	Training, postvention and liaising with others						
	Generic communication skills						
	Collaborative assessment and planning						
	Structured support						
Meta-competences							

4.7 Mapping training onto the Kirkpatrick Model's levels of evaluation

The 34 included studies were also mapped to the Kirkpatrick's model of training evaluation. The model presents four levels of evaluation, with Table 8 providing a summary of the mapping.

Table 8: Training mapped to Kirkpatrick's levels of evaluation

Levels within the Kirkpatrick Model	Indicative content	Included studies mapped at this level
Level 1- Reaction	Satisfaction	18
Level 2- Learning	Skills, Confidence, Knowledge or attitudes	29
Level 3- Behaviour	Impact on practice	17
Level 4- Results or community change	Suicide rates, recurrent self-harm, reduced stigma and increased awareness, multi-agency working	5

4.7.1. Kirkpatrick level 1- What do people think of the training?

This section highlights the information collected from participants in the included studies about their reactions towards the training they received. Evaluation at this level concerns participant perceptions of the training quality and relevance. Out of the included studies which measured outcomes at this level, all 18 papers obtained participant feedback on training; some studies utilised feedback sheets, surveys, scales or questionnaires, and some used more open discussion forums such as interviews and focus groups.

4.7.1.1 Overall reactions to training

Overall, the training outlined in these 18 studies received positive feedback on exploring reaction or satisfaction with the training [17, 19, 22, 24, 26-28, 34, 36, 38, 39, 41, 45-48, 50, 51]. One of the studies explored the perceived suitability of the venue and time of the training, with six studies evaluating training based on how interesting/enjoyable participants perceived it [22, 26-28, 41, 44].

4.7.1.2 Usefulness and relevance of training

Ten studies explored participants perceptions on usefulness or practicality of the training [19, 22, 24, 26-28, 39, 45, 48, 51], and six studies examined participant's perceptions of how relevant training was [17, 28, 34, 41, 50, 51]. Two studies examining participant satisfaction did not explore the perceived usefulness or relevance but instead explored satisfaction with training in a more general way [46, 47].

4.7.1.3 Facilitator feedback

Two studies identified feedback on the facilitator of the training [46, 51]. The other studies did not specifically report on feedback regarding responses to the facilitators, yet:

- one study showed a positive response to trainers, despite participants not being directly asked about facilitators [51], and
- another study highlighted that 62% of recipients agreed that the trainer was well-prepared [46].

4.7.1.4 Negative impacts and suggestions for improvement

Although most of the reactions towards the training were positive, some studies reported negative points or areas participants thought could be improved:

- five of the studies indicated that role-play was uncomfortable for trainees [24, 27, 45, 46, 51];
- there was disappointment from trainees when senior staff were unwilling to participate in role play and demonstrate their skills [27];
- one study found that the suitability of timing for the training was rated lower than other aspects of the training delivery, however no other options were suggested by participants [22];
- one study found that 30.5% of participants commented that improvements to the training could be made, including longer training, a different venue, a shorter time period between the first and second training day and greater acknowledgement of existing skills [41];
- one study identified that five participants thought the videos were hard to follow and that it was unrealistic, with suggestions made to make it more applicable to Scotland instead of Canada [46]; and

- one study explored a digital intervention, with participants overall being happy with this component, even though suggestions were made that it could be inaccessible for some [34].

4.7.2. Kirkpatrick level 2- What did people learn from training?

Out of the 34 included studies, 25 assessed the effect training had on knowledge, confidence, skills and/or attitudes [17, 18, 20, 21, 24, 29, 31-37, 41-44, 46-48, 50, 51].

4.7.2.1 Attitudes

Eleven studies examined attitude as an outcome of training and found a significant improvement in at least one subscale or facet of attitudinal scores [17, 18, 26-29, 32, 34, 36, 40, 50].

4.7.2.2 Immediate post-training changes to knowledge, confidence, skills and attitudes

In studies with no follow-up points, the immediate effect training had on participants confidence, knowledge and skills was measured in 11 studies. However, many of the studies which did measure outcomes at a follow-up point, also measured outcomes immediately after training, with 17 studies measuring outcomes immediately post-training:

- thirteen studies measured the immediate impact training had on confidence/self-efficacy [20, 24, 26-28, 31-34, 41, 46, 50, 51];
- five studies measured the immediate impact training had on knowledge [20, 31, 34, 50, 51];
- seven studies measured the immediate impact training had on skills [24, 27, 31, 34, 41, 46, 51]; and
- ten studies measured the immediate impact training had on attitudes [24, 26-29, 32, 34, 40, 50, 51].

4.7.2.3 Maintenance of knowledge, confidence, skills and attitudes over time

Twenty-two studies measured longer-term outcomes, ranging over a period from three weeks to 18-24 months post-training. Although some of these studies did not have a pre-test measure, which meant change from baseline could not be measured:

- eleven of the studies measured maintenance of improvements in confidence [24, 26-28, 51 31, 34, 37, 41, 44, 50].

- five studies measured maintenance of improvements in knowledge [38, 46, 50, 51] [42, 43];
- ten of the studies measured the maintenance of skills improvements [17, 18, 24-26, 31, 34, 37, 41, 48, 51];
- eight of the studies measured improvements in attitudes [18, 24, 26-28, 40, 42, 43, 50]; and
- two studies measured the maintenance of clinical outcome improvements as a result of patients receiving an element of training from a therapist or HOPE worker [21, 23].

4.7.2.4 Refresher training

Five studies explicitly identified the need for further refresher training or additional materials [19-21, 44, 45].

4.7.3 Kirkpatrick level 3- What did people do as a result of the training?

Seventeen studies explored the extent, if any, to which participants used the skills or knowledge gained from training within practice, either in a professional or personal capacity.

4.7.3.1 Training impact on practice

Overall, many of the studies explored the impact of the suicide and/or self-harm training on practice:

- three studies explored impact of training on clinical practice in a general way [24, 25, 30]. In Fenwick's study when participants were asked whether attending the course had changed their practice the modal answer was ''to some extent'' for both groups, the workshop group 54.7% and the lecture group 76.2%). However, there was no significant improvements reported;
- five studies found participants had increased confidence and (a positively) altered approach to talking about suicide or self-harm with people [27, 31, 34, 41, 46];
- eight studies found improvements to assessment, recognition, or management of suicide risk [17, 19, 26, 28, 31, 37, 46, 47];
- two studies found an improvement in record completeness post-training [18, 44]; and

- two studies found an increased likelihood to intervene post-training [48, 51].

Most of the results relating to the impact of training on practice was obtained in the studies using self-report methods, except for two studies [18, 44] in which record completeness was objectively assessed by reviewing records for each respective organisation.

4.7.4 Kirkpatrick level 4 - What difference has training made?

The final level of evaluation in the Kirkpatrick model includes a focus on the wider impact of training. These wider impacts include impacts on suicide rates, self-harm admissions, stigma and awareness of suicide and/or self-harm, multiagency working, and economic, organisational, and wider public impacts.

4.7.4.1 Suicide rates

Only one of the included studies examined the potential impact of training on suicide rates in a specific region [16]. This study did not find evidence of training to be effective in reducing suicide rates.

4.7.4.2 Repeated self-harm admissions

One study examined repeated self-harm admissions of participants following the training/session they received [23]. The study highlighted that therapist competence did not have a significant impact on recurrent self-harm episodes following the initial self-harm episode and training.

4.7.4.3 Reducing stigma and raising awareness

Three studies found training to be effective in reducing and challenging the stigma associated with self-harm or suicide [42, 43, 46, 51]:

- one study showed that the educational campaign raised awareness of suicide rates, within the general public [42, 43]. In addition, the study found a positive significant correlation between levels of campaign awareness and de-stigmatising attitudes in their survey results [42, 43]; and
- one study found that participants recognised that information sources may not always be unbiased: "*The media has a biased view on this subject, and*

promotes stigma and guilt, but this course blasts that away. It is about being open and honest."(pg. 24)[46].

4.7.4.4 Impact on multi-agency working and information sharing

One study found an impact on multi-agency working and information sharing [19]. The study highlighted that 38.6% of the 14 participants felt WARRN training's biggest impact was on improving multi-agency working, information sharing and communication [19]. One study highlighted an increase in the number of liaisons conducted with the parasuicide team following training [18]. Additionally, another study highlighted ASSIST and STORM training improved multi-agency and organisation communication [48].

4.7.4.5 Economic impacts

Two studies explored the economic impact of training using a cost analysis approach [17, 51]. Within one of the studies, it was demonstrated that training was good value for money in their cost analysis, with a total cost of £84785; £508 per person trained, £86 per trainee hour [17]. One found that ASSIST was an expensive training programme, which may be difficult to sustain [51].

4.7.4.6 Organisational impacts

Five studies highlighted wider organisational impacts of the training participants received, and four of these five studies highlighted organisational impacts specifically in relation to STORM training:

- one study detailed the impact STORM had on trust, in that it provided a framework for asking about key issues important to risk assessment [27];
- one study highlighted problems faced from organisations, including issues around repayment of training on leaving the organisation, although positive outcomes included the development of departmental policies and procedures to make improvements to organisational policies on suicide [28];
- one study highlighted that managerial engagement had resulted in the development of a new suicide prevention and treatment pathway using constructs from STORM training, although wider difficulties included issues related to systematic oversight of local monitoring of training within organisations [25];

- one study found that 45% of participants said that more than half of their colleges had also been trained, with one-fifth saying all colleagues had attended suicide prevention training [48]. Interviews with managers highlighted that there was an increase in openness following the attendance of prevention training which allowed staff to better support each other [48]; and
- one study found that some organisations actively approached the developers/researcher and requested copies of the training provision despite not being on the initial mailing list, suggesting a wider level of reach/impact [39].

4.7.4.7 Public impact

Finally, one study showed that clinicians communicated that the safety of service users and the general public had been enhanced due to the introduction of WARRN training [19]. Additional impacts included that the training was helpful for clinical formulation of risk, general public safety and communication, service-user safety, and on the number of lives saved and serious untoward incidents.

5 Discussion

The aim of this scoping review was to identify and collate the available evidence, to understand how best to design and deliver education and/or training, that is effective for people who require self-harm and suicide prevention training.

To achieve the aims of the scoping review, the following objectives were:

1. to collate available evidence on the range of suicide and self-harm prevention training in the UK, from clinical and non-clinical settings;
2. to understand the type of training available, and its effectiveness and acceptability, and
3. to understand the impact that the training has on suicide and self-harm prevention.

Of the 3,202 identified papers, our findings reported on 34 studies which matched the inclusion criteria. The results in Section 4.0 have summarised the:

- type of training available, method and length of delivery, and content of training,
- outcome measures used to assess effectiveness of the training,

- a mapping of the training against the Kirkpatrick Model, and
- a mapping of the training against the HEE competency frameworks.

5.1 Summary of main findings

The results show that overall, there is limited evidence on the effectiveness of self-harm and/or suicide training within UK settings, with 34 studies meeting the inclusion criteria. Most of the included studies are from within a healthcare setting, with limited evidence from other contexts, such as education or community sectors. The majority of the evidence obtained is also taken from across England, which may have limited transferability to other devolved nations. No studies explicitly reported on training that has been delivered in the North East of England.

Suicide and/or self-harm training varied across the included studies, but the majority were between a half to a full day's length, or between one to two days duration. Modular delivery was common amongst the training, with a combination of didactic training (e.g. lecture format), but often supplemented with group work, scenario setting, and either individual or group reflection. The background of the trainers varied, with the majority of studies describing trainers as having a background from either a psychology or healthcare.

The content of the training varied across included studies. However, in general, the training covered: defining self-harm and suicide, facts on suicide, prevalence statistics, attitudes of the attendees, perceived attitudes of others, and challenging any negative attitudes. The training outlined in the included studies also focused on awareness of factors which may be related to an increased risk of self-harm and/or suicide, including relationships with friends and family. For the training, which was delivered to healthcare professionals specifically, the content of the training also covered the assessment process for those at risk of self-harm and/or suicide, as well the methods for screening for mental health conditions. How to manage and support those in crisis was also highlighted alongside the potential preventative methods to minimise self-harm and/or suicide risk including coping mechanisms and self-help methods for the individual. In addition, training also focused on managing those in crisis, and the specific treatment methods used for those at risk of self-harm and/or

suicide. Where there was a focus on skill development the training programmes in general sought to enhance the recipient's decision-making and care planning skills. Signposting attendees to services and organisations for further information and support was present within many studies.

A range of outcomes were measured within the included studies, including on behaviour (incidence of suicide) following training/education, and changes in attitudes, knowledge, and confidence of trainees. That said, the majority of the included studies focused largely on measuring attitudinal, knowledge, and confidence changes, rather than on the impact on levels of suicide and/or self-harm. Some utilised validated outcome measures, with few of the validated measures measuring impact on suicide and/or self-harm levels post-training. Additionally, where validated outcome measures were used, the results were not always shown to be statistically significant. For many of the measures some components (sub-scales) were shown to be significant but not across the full scale. Overall, the evidence of significant effect largely is related to changes in confidence and attitudes, as well as satisfaction with the training received, rather than a significant impact on suicide and/or self-harm levels. However, it is worth considering that statistical significance does not always relate to clinical significance. Statistical significance does imply that the study was reliable and is linked to the sample size for the study. Indeed, many of the studies do not report clinically significant impacts, which is "*the extent of change, whether the change makes a real difference to subject lives, how long the effects last, consumer acceptability, cost-effectiveness, and ease of implementation*" (pg. 1)[52] .

Findings from the Kirkpatrick mapping show that of the 34 included studies, most can be mapped to levels one to three of the Kirkpatrick model, with only a small number being mapped to level four. The majority of the included studies were able to be mapped to level two of the model, focusing on what participants learnt from training, with very few focusing on wider impacts. Whilst understanding what is learnt from training is important, to ensure that the training is fit-for-purpose in an educational context, it is important in this context that the training has wider impact, i.e. on suicide and/or self-harm levels. Most of the included studies did not measure this

wider impact, which may be due to the linear relationship from training to end outcomes being difficult to measure.

Indeed, findings from the mapping of the training to the HEE competency frameworks show that few competencies were also reflected in the training. This may be due to limited details being reported in the studies, but may also be due to competencies not being mapped when training was designed. For the children and young people framework, there is some evidence that knowledge and issues are reflected in the training, but less so for interventional skills. For the adults and older people and the higher education frameworks, there is limited evidence across the board that the respective competencies are indicated in the training. Lastly, for the community and public health framework, there is limited evidence to suggest that attitudes and generic communication skills have been considered in the training.

5.2 Comparison to literature

Previous training evaluations have sought to evaluate the impact of suicide and/or self-harm training on increasing awareness of suicide risks and suicide prevention, impact on mental health and wellness, and wider impact on communities and service providers (in being able to identify individuals at risk of suicide and respond appropriately). In an evaluation of Lancashire and South Cumbria's suicide prevention training programme [53], their process and outcome evaluation of training found short-term positive outcomes, such as increased awareness of suicide risks and suicide prevention following training. The evaluation also found that a greater proportion of people who had been trained were more aware of who is at risk of suicide and ways it can be prevented after receiving the training. These findings are consistent with the results of our scoping review, particularly with regards to short-term impacts on increased awareness of, and attitudes towards, suicide and self-harm following training. The suite of training in the Butler *et al* (2020)[53] study included large training programmes, such as ASIST and SafeTALK. Overall, feedback from recipients on these training formats was also positive. This result was also found in our scoping review, with the majority of training recipients providing positive feedback towards the training that they received, including those who received ASIST and SafeTalk training. Similarly, and from a German context,

Groschwitz *et al* (2017)[54] reported very similar feedback from training recipients, and similar positive outcomes related to attitudes, confidence, and perceived knowledge on non-suicidal self-injury. These studies, together with our scoping review findings, therefore suggest that there is some evidence of effectiveness for attitudinal change following training.

Other reviews have also been conducted exploring the evidence around suicide and self-harm training, including a rapid review from Ubido and Scott-Samuel (2014)[55]. Their review of training found a similar suite of training provision to those identified in our scoping review (e.g. ASIST, SafeTalk), indicating that training in this area may not have been updated/adapted/added to over the last few years. Similar to findings in our review, their rapid review also found significant improvements in the attitudes and confidence with regards to suicide and/or self-harm in recipients of training. As with our review, they also reported that longer-term follow-up, of the impact of training, was limited. Additionally, their report highlighted barriers and limitations to the training reported in their rapid review, including financial constraints of training programmes, resistance of staff to attend training, and limited evidence of effectiveness. Across the 34 studies included in our scoping review, very few provided information on the financial cost – and cost effectiveness – of training, thus this remains a limitation of these types of training evaluation studies. Whilst many of the included 34 studies in our review did report attrition of training participants, it was not a clear finding that there was resistance from staff to attend training, contradicting this earlier evidence. Lastly, our findings concur with the findings of Ubido and Scott-Samuel[55], in that our scoping review additionally found limited evidence of effectiveness of training on suicide and/or self-harm levels.

In terms of cost-effectiveness of suicide and/or self-harm training in particular, in 2011, the Department of Health published a report that calculated that for every £1 investment into suicide prevention through General Practitioner training, then £44 is saved [56]. However, as indicated earlier, our results highlight limited evidence on cost-effectiveness of suicide and/or self-harm training in general. In particular, across the 34 included studies in our review, we did not find evidence of training being specifically focused on GPs, with the majority of the studies reporting training which was targeted towards healthcare professionals more generally, such as A&E staff,

CAMHS services, and student nurses. This is not to say that training is not being delivered to GPs, as we know this does happen with examples being presented by Public Health England [57]; rather it may be the case that this training may not be being evaluated and/or published, to add to the evidence base. Additionally, our scoping review largely identified training undertaken in healthcare settings, with only limited evidence from other contexts. In relation to this finding McGeechan *et al* (2018)[58] recommends that there is a need for more suicide and/or self-harm training for police officers, to ensure they are fully aware of the suicide strategy and to help provide them with the skills to be confident when engaging with those affected.

Whilst our scoping review found limited evidence evaluating training on suicide and self-harm across sectors other than healthcare, it is – as stated above - noticeable that recipients of training were largely healthcare professional groups, rather than with and/or for population groups that have been identified as requiring greater support; such as young people. An all-party parliamentary group on suicide and self-harm conducted an inquiry into the support available to young people who self-harm, with the findings being published in 2020 [59]. The inquiry found that, particularly in a post-COVID era, there is likely to be increased demand for mental health services by young people. The report finds that in order *"to combat this, education around self-harm remains of paramount importance at all levels of society, alongside improved and expanded training for professionals who come into contact with young people who self-harm"* (pg. 7) [59]*.* Therefore, given that our scoping review only reports results from studies conducted within very few contexts, with a limited range of professionals and wider stakeholders represented, it appears that this 'call to arms' in the inquiry report is certainly substantiated.

As shown in our scoping review, we mapped the content of the training from each included study to the HEE competency frameworks [10-12]. We found that no studies mapped fully onto the frameworks, with most only partially demonstrating the competencies in the training provision at best. When comparing this finding to previous literature, this finding contradicts Timpson (2020)[60] in particular, who, in their review of the self-harm and suicide prevention training delivered to workforces across Cheshire and Merseyside documented that "*the evidence from this research shows that the available training appears to meet the HEE-UCL Framework*

Competencies for equipping the workforce with core self-harm and suicide prevention skills" (pg. 52)[60]. However, Timpson's evidence was from training provided in one specific geographical area only, and so cannot be compared directly with our findings, which includes evidence from across the UK. That said, similarities can be drawn, as Timpson[60] documents that "*gaps that are present are due to limited evidence and are for those competencies that are more specialist*" (pg. 52)[60]

Looking more specifically at the training formats used across our included studies, most studies delivered training in face-to-face formats. Therefore, evidence of effectiveness on web-based/digital suicide and/or self-harm training (and, in comparison to face-to-face training) is limited. Whilst our inclusion criteria only included training from a UK context, a feasibility study conducted in Australia, has however explored web-based gatekeeper training on suicide [61]. The study found participants who received web-based training demonstrated significant gains in knowledge of suicide prevention, self-efficacy for suicide prevention, and behavioural intentions to engage in suicide prevention. In addition, it was noted that the web-based training may be as effective as face-to-face training. However, knowledge, self-efficacy, and behavioural outcomes declined in both groups post-training up until the six-month follow-up point [61]. Therefore, whilst our scoping review did not find evidence of effectiveness for web-based suicide and/or self-harm training, there is some evidence to suggest it may be appropriate and effective, albeit with a similar limitation of reduced longer-term impact. This need, for further evidence on web/internet-based support/training and also gatekeeper training, was also recommended in a systematic review by Zalsman et al (2016)[62].

5.3 Strengths of the scoping review

This scoping review has identified and sifted available academic/peer-reviewed evidence on suicide and/or self-harm training. By systematically searching all of the main health-related academic databases, using an established research methodology for scoping reviews, we are confident that we have identified relevant evidence on suicide and/or self-harm training from across the UK. Additionally, the scoping review has reported not only the main findings in relation to training length, content, recipient characteristics, and training settings, but it has also mapped the training content against the HEE competencies, to identify whether the training

provided meets these benchmark standards. Such mapping does not appear to have been done across studies for suicide and/or self-harm training, but has been done before with regards to dementia training. Furthermore, by mapping the training to the Kirkpatrick model, we have also been able to identify the depth and scope of the training, resulting in identifying gaps in the training provision. Additionally, we have considered how outcomes were measured and reported, to be able to identify whether robust validated outcome measures have been used, and subsequently finding limited evidence of effectiveness on the impact of training on suicide and/or self-harm levels. These findings highlight the need for future training recommendations, both for content/design of training, but also for evaluation and measurement of impact.

5.4. Limitations of the scoping review

By design, this review focused on specific evidence from across the UK; and, therefore, does not include evidence from other countries. This may limit the generalisability of these findings to populations outside of the UK. Additionally, as is true to all reviews, depending on how papers are indexed by databases, there is the chance that some relevant papers were not found as their keywords did not match the keywords that we had used to search the databases. However, to counteract this, we undertook a grey literature search (to source information produced outside of traditional publishing and distribution channels, which is often not well represented in indexing databases), as well as reviewing the reference lists of included papers. These supplementary searches did indeed find additional papers. Furthermore, to be able to complete the scoping review efficiently, and in a short period of time, multiple team members were used for sifting the papers and data extraction. This may have generated the potential for variability across sifting and data extraction; however, a specific, standardised methodology was created and agreed pre-sifting to ensure comparable processes were followed. It should also be noted that it is commonplace to have at least two individuals to work on these elements of a review.

As we have undertaken a scoping review, we have not critically appraised the 34 included studies; given this is not commonplace in scoping reviews. This means that we cannot comment on the quality of the included studies, which may or may not

have an impact on the validity and reliability of the evidence from across the studies. However, this scoping review has offered an overview of the available research evidence base, which can be used to inform current practice, and offer direction for future research. Lastly, we employed content analysis to provide an insight into the findings across the included studies. Content analysis was deemed appropriate in this setting, to answer specific questions on the type of training, and outcomes of training; however, as with all methods of analysis, there are limitations to content analysis, including that it can be reductionist and has the potential to miss nuances and complexity within the data.

5.5 Limitations of the scoping review findings

On an aggregate level the findings suggest limited impact of the training on suicide and/or self-harm. Given that the papers do not all use the same outcome measures, we were unable to meta-analyse[1] outcome measures across the included studies, to provide a firm conclusion on what is effective. However, again, this is traditionally not part of a scoping review. Additionally, as not all elements of the training were measured using validated outcome measures, it is impossible to determine exactly which elements of the training had an impact on outcomes (e.g. lecture delivery has more of an impact than group work on attitudinal change).

Whilst overall we have found limited evidence of effectiveness from the training provided, where effectiveness was statistically analysed, only few studies reported effectiveness at longer-term follow-up points. Therefore, it is difficult to say whether training has a long-term impact on outcome measures. Additionally, it is important to note that some of the included studies used small sample sizes, limiting generalisability of the findings.

6 Recommendations and Key Conclusions

The findings of this scoping review highlight potential recommendations for practice and for future research.

[1] Meta-analysis refers to a type of statistical analysis that combines the results of included studies. This can be done when outcome measures are standardised across studies.

6.1 Recommendations for practice

Whilst it is important that training on suicide and/or self-harm is available, the results suggest that training as a standalone element may be insufficient to have a direct impact on suicide and/or self-harm levels. Rather, training and education could be considered as part of a wider strategic approach to help reduce suicide and/or self-harm levels, which encompasses a multi-faceted approach to suicide and/or self-harm training where training is only one component.

Additionally, where practitioners in the field are developing or commissioning preventative suicide and/or self-harm training programmes, they should ensure that any training programme is mapped to HEE competency frameworks. This will help ensure that training covers all competencies and is as comprehensive as possible.

Furthermore, where practice seeks to utilise existing evidence on the impact of training on suicide and/or self-harm levels, there should be consideration of the challenges of measuring the direct causal link from training to suicide and/or self-harm rates. Establishing a linear relationship may be difficult and is often dependent on study design. For instance, correlational studies can only show the relationship between variables, and they cannot provide definitive causation. Whilst experimental designs are often the most conclusive in terms of establishing cause and effect, it is difficult to undertake such a design in the 'real world'. Therefore, any limitations as a result of study design need to be carefully balanced with the ability to undertake research for evidence-based practice.

Through analysing the content of the training, particularly the format of the training (e.g. lectures, workshop formats), it appears that participant feedback on the use of role-plays (by the participants themselves) was deemed to be uncomfortable (though not always). In comparison, scenario and role-plays conducted by actors was positively perceived. Therefore, to enhance engagement with training it may be important to consider the format of any future training provision. Additionally, it may be important to consider the context and the location of the training; to be able to understand different needs of the recipients. These factors should be considered

more fully, should training be mapped to HEE competencies, which account for varying contexts.

Whilst it cannot be causally linked, there may be an impact of the trainer skills and qualifications on the delivery of the training. This impact was not objectively measured, neither was there a great deal of variation in the type of trainer; with most having a psychological/psychiatry background or skills. Indeed, few studies used a train-the-trainer approach, so it is also difficult to tell whether this impacts training fidelity and impact. Additionally, there was limited evidence of web-based/digital training delivery across the included studies over and above the use of videos. These are all important considerations for future mass/widespread implementation of such training. Indeed, there appeared to be a great deal of heterogeneity across the included studies. Future training may benefit from a standardised approach to be able to compare effectiveness across settings and contexts, and formats which account for contextually and geographically tailored training.

Additionally, across the studies, most of the training was of short duration. Feedback on training duration across the included studies was mostly positive, however, duration may need to be balanced with actual impact (effectiveness). Given limited results on follow-up points across the studies, it may also be the case that refresher training is required, although there is limited data to be able to conclusively state this.

Whilst feedback was sought from recipients of training across the included studies, there was a noticeable lack of involvement from the service user perspective. Such feedback would be useful in future training, to develop training content, to explore its fitness-for-purpose, and to understand its impact on service users. Lastly, some studies highlighted the importance of senior staff buy-in to the training. This may have an impact on training uptake, adherence to the full training programme, and wider roll-out of training.

6.2 Recommendations for future research

In order to learn from future training programmes, it appears important that future evaluations of suicide and/or self-harm training evaluations make use of models

such as the Kirkpatrick model, in order to ensure rigorous evaluation methods are used to assess training provision. Additionally, it is useful for future research on such training programmes to undertake some form of pre- and post-test measures, to better understand the impact of the training. Furthermore, should the training be found to be effective, it is imperative that the descriptive content of the training is explicit, to allow others to replicate the training. This is particularly important, as we found that the descriptive content of the training was sometimes poor across the 34 included studies; this was highlighted when mapping the content to the HEE competency frameworks, with the finding that it was difficult to understand exactly what was used to inform and develop the training, as well as the exact content. Further, exploring the content of the training with experts by experience is also important; particularly to make the training more relevant and appropriate in terms of the HEE competencies.

Research may also explore why HEE competency frameworks may not always be used to design training on suicide and/or self-harm, as well as exploring how training designers could be supported to make use of them. Additionally, considering what the different training needs of participants are in advance of training, would be useful exploratory research, which can then be factored into the design of the training. In terms of training provision, it is also important that any future research include longer-term follow-up points, to identify when refresher training may be required, but also to ensure that long-term change in outcomes is achieved and maintained.

Standardising reporting of information from research in this area, where possible, is also important. This is to enable the comparability of information across studies, both from within and across settings/disciplines. In particular, reporting of basic demographic information on who receives the training is needed in any future studies in this area. Reporting studies without this information can reduce external validity and transferability of the findings. It also makes it difficult to compile an evidence base on what training works, when, where and for whom.

Finally, as we are unable to report on cost-effectiveness of the training delivered across the included studies, it is recommended that future research explore cost-effectiveness of training provision. Additionally, it may be useful to compare face-to-

face training with web-based/digital training to: 1. understand if one delivery mechanism is more effective, 2. if one delivery mechanism is more cost-effective, and 3. to understand the trade-offs between effectiveness and cost-effectiveness to the number of people who can be trained.

6.3 Key conclusions

This scoping review found 35 papers, reporting on 34 studies, that met the inclusion criteria. Most of the included studies were undertaken in England, and most involved training within a healthcare context. Training programmes varied across the included studies, but some of the studies used large-scale suicide and/or self-harm training programmes such as SafeTALK, ASIST, and STORM training. Not all studies reported pre- and post-training outcomes, so it is difficult to conclusively state whether training had a direct impact on outcomes. Additionally, only one study reported outcome measures that directly linked to suicide levels, with most of the studies reporting outcomes that focused on attitudinal and confidence changes. Mapping findings to the HEE competency frameworks showed that few studies explicitly described training content that met these competences. Additionally, mapping the studies to the four levels of the Kirkpatrick model showed that level four (wider impact) was reported in only five of the 34 studies. It is recommended that future training provision is explicit and detailed to allow others to replicate the training should it be found to be effective. Pre- and post-training outcome measures are also required in future evaluations of such training, to understand what impact the training had on outcomes.

6.4 Work package two – developing an audit tool

The findings from this scoping review, will in part, be used to inform work package two of this work. Work package two will develop an audit tool and user manual, to identify training that meets the standards required. This will determine if the training:

- meets the HEE Competency Frameworks for self-harm and suicide prevention;
- has a clear evaluation strategy, and who the training is aimed at;
- has been peer-reviewed to ensure it is aligned with current best evidence/practice;

- is co-produced with people with lived experience of self-harm and suicide; and
- includes other factors that may be identified from the rapid scoping review.

Indeed, when considering the training included in the 34 studies in this scoping review, most of the studies did not fully consider at least one, but most of, the bullet points above. In particular, our scoping review found that most studies did not meet many of the elements of the HEE competency frameworks [10-12], many did not have robust – and longer term – evaluation strategies, and many training programmes had not been co-produced with experts by experience. It is therefore paramount that the audit tool is able to account for these factors, to ensure that any training undertaken across organisations is fit-for-purpose and establishes direct impact on suicide and/or self-harm.

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8 Appendices

Appendix 1: Reporting of Scoping Review using PRISMA Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	2
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	n/a
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	6-7
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	8
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	n/a (cannot register a scoping review)
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	9
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	9-10
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Appendix 2
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	10
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	10
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	10-11

Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	n/a
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	11
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	14
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	15
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	n/a
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	15-42
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	15-42
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	43-45
Limitations	20	Discuss the limitations of the scoping review process.	49-50
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	50-54
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	6

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.
* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.
† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).
‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.
§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

Appendix 2: Table of Search Terms and Keywords*

Population	Intervention			Outcome
	Training	Self-harm	Suicide	
Not targeting a specific population, populations could include Mental health service staff, academic institution staff etc.	Training OR education OR development OR learning OR program OR course OR workshop OR class OR online OR webinar OR skills competencies OR induction OR Educational intervention	self -harm OR self-injury OR deliberate self-harm or DSH OR self-mutilation OR self-injurious behaviour OR cutting OR harming OR Burning OR self-Inflicted OR non suicidal self-injury OR NSSI OR Self-poisoning OR deliberate injuring of one's body OR self harm OR self Injury OR deliberate self harm OR self mutilation OR self injurious behaviour OR self inflicted OR self poisoning OR non suicidal self injury OR self-injury disorder OR self injury disorder OR self-inflicted pain OR self inflicted pain OR self abuse OR Self-abuse or self-hurt OR self hurt OR to deliberately hurt oneself OR self-punishment OR self punishment OR controlled pain OR self-inflicted harm OR self inflicted harm OR self-inflicted wounds OR self inflicted wounds OR self inflicted wounding OR self-inflicted wounding OR harmful thought	suicide OR suicidal behaviour OR suicidal ideation OR Suicidal thoughts OR suicidality OR suicide attempts OR taking own life OR self-inflicted death OR parasuicidal behaviour OR Ending own life OR checking out OR suicidal gesture OR killed themselves OR not wanting to go on OR wanting to end it all OR suicidal tendency OR suicidal feelings OR intentionally kill oneself OR deliberately kill oneself OR commit suicide OR death by own hand OR want to die OR top oneself OR end it all OR do away with oneself OR killing yourself OR self murder OR self-murder OR self-obliteration OR deleting yourself	effectiveness OR evaluation OR reduction OR improvement OR prevention OR review

*We are aware that some of the words included in the search terms may have negative connotations and we are advocating for moving away from using such language. However due to the nature of the study in identifying all possible literature, we had to use words which papers listed in databases would also use as keywords in order to locate them in our searches.

Appendix 3: Table of Included Studies

Authors and Setting	Aim	Recipients of Training	Methods	Training Characteristics *Content, methods, duration, and 'other' characteristics*)	Outcomes
Appleby et al (2000) [17] Mental healthcare settings (n=3) England.	Assess the feasibility of training for assessing and managing people at risk of suicide.	Primary care: A&E and mental health services (n=359): general practitioners (n=161), practice nurses(n=83), nursing staff (n=41), junior medical staff (n=9), junior psychiatrists (n=19), community psychiatric nurses (n=27) and psychiatric social workers (n=19).	Feasibility evaluation using outcome scale measures.	**Length and method of delivery** Training was divided into two-hour sessions, with total training time of six hours for primary care, and accident and emergency staff, and eight hours for mental health staff. All training was delivered in a period of approximately six months. Training included written handouts, oral presentations, discussion, videotaped presentations, and role plays with feedback. **Content** Sessions focused on: • assessment of suicide risk, mental state and psychosocial problems • clinical management of suicide risk • clinical management of emotional crises by 'problem-solving' • prevention of further crises (mental health staff only). **Other characteristics** Training was delivered by three mental health trainers (two psychiatric nurses, one graduate psychologist) who were recruited for the study and who were themselves trained to deliver training.	Final sample (n=62) who attended all training sessions. **Quantitative outcomes** • scores on an attitude scale (developed by the authors) found a significant improvement in all scores (assessment, clinical management, and problem-solving • mental health professionals did not improve in assessment skills; their clinical management skills did improve but with this sample size the change did not reach significance; similarly, the improvement in their total scores did not reach significance • the non-mental health professionals, whose baseline scores for assessment were lower, improved in most areas and their overall skills scores improved significantly; the improvement in their scores on the assessment of suicidal intent was also significant and brought them close to the level of skill demonstrated by the mental health professionals. **Qualitative outcomes:** Feedback on the training showed: • skills and techniques taught on the course were useful or relevant to their own work (63% 'definitely', 35% 'somewhat' useful/relevant) • feedback on specific components of the training (role play, group feedback, use of video) was also strongly positive.
Barnes et al (2018) [21] Healthcare - Emergency Department (n=1) England.	Determine feasibility and acceptability of a brief psychosocial intervention: 'HOPE'.	Adults (18+) who had self-harmed and/or were in psychological distress, and had financial, employment, welfare benefit or housing problems. Intervention group (n = 13) control (n= 6).	Pilot randomised trial with mixed methods feasibility research, with follow-up via questionnaires at three months post-randomisation. Interviews with participants also conducted at three months post-randomisation.	**Length and method of delivery** • Intervention group - received up to six one-hour one-to-one sessions with a HOPE worker over a three-month period. • Control participants received one session with a HOPE worker. **Content** Intervention arm patients received: • sessions which discussed patient needs and collaboratively developed a support plan • help to respond to letter concerning welfare benefits • advice on benefits • support for patients accessing key agencies and community resources • motivational interviewing. • Control participants received one session with a HOPE worker and were signposted to relevant agencies, but no MI was received. **Other characteristics** Sessions delivered by community support staff trained in motivational interviewing.	Final sample (n=19): 50% of the control group (3/6) and 85% of the intervention group (11/13) completed follow up interviews, with 3/6 of the control and 10/13 of the intervention group completing questionnaires. **Quantitative outcomes** • Patient Health Questionnaire (PHQ-9) scores reduced from 19.0 (SD 5.1) at baseline to 11.0 (SD 8.7) at follow-up • General Anxiety Disorder Questionnaire (GAD-7) scores reduced from 15.0 (SD 4.4) at baseline to 6.9 (SD 5.9) at follow-up • Quality of Life (EQ5D-5 L) scores increased from 0.76 (SD 0.15) at baseline to 0.84 (SD 0.19) at follow-up • Financial Self Efficacy (FSES) scores increased from 10.1 (SD 3.2) at baseline to 12.7 (SD 5.1) at follow-up • Of the 12 participants who answered the self-harm questions at follow up, three had self-harmed in the period post-randomisation; all three were in the intervention arm. **Qualitative outcomes** HOPE workers reported several challenges and facilitators in providing the intervention: • delays in responses from statutory agencies • having to fit delivery of the intervention around other aspects of their work • requiring more practice of MI techniques • requiring a team of dedicated workers to make the intervention work well • being flexible in the provision of and spacing of sessions • working with and alongside the service user • structure and rationale of the MI techniques

					• additional MI training sessions required. Recipients of training reported: • debt relief • feeling properly listened to and supported • finding the intervention to be a positive experience • although found the outcome measures onerous to complete.
Burford & Hardy (2019) [22] Education – University (=1) England.	Equip students attending one university in England with the skills to self-manage their mental health and seek further help when needed.	New university students (n=16)	Delivery and evaluation (using evaluation forms) of an educational programme.	**Length and method of delivery** Sessions were delivered face to face, using a PowerPoint presentation, with links to helpful websites and resources. Also provided, was a list of useful apps, websites and local services as a credit card sized concertina fold-out. Sessions were six-weekly 45-minute sessions, but attendance was voluntary. **Content** Six sessions focusing on: • 1: practical preventative information • 2: common problems for students part one • 3: common problems for students part 2 • 4: self-help methods and local services and support • 5: unhealthy behaviours • 6: looking after your mate. **Other characteristics** Sessions delivered by a nurse practitioner.	Final sample (n=7). **Quantitative outcomes** Student mean scores for the acceptability and suitability of the sessions (Likert scale (1—disagree, to 5—agree): • Informative 4.3 • Useful 4.3 • Interesting 4.3 • Room suitable 4.7 • Time suitable 3.5 • Location appropriate 4.5 Mean scores for effectiveness of the sessions: • Session 1: 4.75 • Session 2: 4 • Session 3: 4 • Session 4: 4.83 • Session 5: 4 • Session 6: n/a
Crawford Turnbull & Wessely (1998) [18] Healthcare – Accident & Emergency, (n= 1) England.	Evaluate the impact of training on the quality of psychosocial assessment of deliberate self-harm patients.	A&E staff: nurses (n=52), junior medical staff (n=15).	Non-randomised intervention comparing psychosocial assessment of deliberate self-harm patients before and after a one-hour teaching session. Outcomes measured by pre- and post-intervention questionnaire.	**Length and method of delivery** Face-to-face one-hour teaching session. **Content** Sessions covered: • epidemiology of deliberate self-harm • assessment of patients and identification of those at risk • difficulties and management of assessments • service provided by the parasuicide team • discussion of issues raised by participants. **Other characteristics** Sessions delivered by author and nurses from the parasuicide team.	Final sample (n=60): 45 nurses (86.5%) and 15 (100%) junior medical staff attended the teaching session. Pre-questionnaire completed by all participants, with 44 participants completing post-intervention questionnaire. **Quantitative outcomes** Statistically significant findings were found for the statements (95% Confidence Interval): • 'Patients you see who are always taking overdoses are less likely to kill themselves than those who have only tried once': (20 (3.2 to 36.7)) • 'I feel I have the necessary skills to play my part in the assessment and treatment of deliberate self-harm patients' (23 (5.1 to 40.9)).
Davidson et al (2004) [23] Healthcare - (A&E) departments (n=9) from five UK study centres	Hypothesis tested: higher levels of therapist competence would lead to better clinical outcomes in	Health service staff (n=26).	Randomised controlled trial, with six- and 12-month follow-up.	**Length and method of delivery** Face-to-face workshops utilized small group work: videos and role-play allowed the practice use of relevant techniques. The original 26 trainers received two days of training, followed by an additional 1 day of training when the trial began. **Content**	**Final sample** Originally, there were 26 staff, although an additional 11 therapists were recruited later to provide replacements for those therapists who left the study. **Quantitative outcomes (at 6 months)** • Only the Montgomery-Asberg Depression Rating Scale (MADRS) showed significant findings (F=3.32, df=2, p=0.04)

UK.	both patient- and observer-rated measures.			Training followed the Manual Assisted Cognitive Therapy (MACT) pathway. All therapists utilized the MACT booklet during training. Local supervision was offered to all therapists by a senior clinician, trained in cognitive behavioural therapy. **Other characteristics** Profile of staff involved in training: nurses (n=20), clinical psychologists (n=6), social workers (n=4), occupational therapists (n=3), psychiatrists (n=4). Training offered by a senior clinician trained in cognitive behavioural therapy.	**Quantitative outcomes (at 12 months)** At 12 significant findings were found for MADRS, BAS, and GAF: • Hospital Anxiety and Depression Scale (HADS) (F=2.21, df=2, p=0.11) for anxiety and (F=1.78, df=2, p=0.17) for depression • Social Functioning Questionnaire (SFS) (F= 6.30, df= 2, p= 0.27) • MADRS (F=3.32, df=2, p=0.002) • Brief Anxiety Scale (BAS) (F = 4.19, df= 2, p = 0.017) • Global Assessment of Function (GAF) Scale (F= 3.80, df= 2, p= 0.025) for symptoms and social scales. • There were no significant differences between therapist competence and the total number of episodes of self-harm that occurred during the 12 months following the index episode (x2=1.57, df=2, p=0.46)
Felton et al (2013)[45] Higher education – University (n=1) England.	Evaluation of a shared learning experience simulation.	Child and mental health pre-registration nursing students (n=16).	Qualitative evaluation: focus groups, one pre- and one post-simulation, and an open-ended questionnaire post-simulation.	**Length and method of delivery** • 60-minute preparation session prior to the simulation • two simulation sessions of 45-minutes each were undertaken • 60-minute reflective debriefing session. **Content** Two scenarios were shown, one where a young person is admitted to health services following self-harm and a second situation in which they have taken an overdose of paracetamol were written.	Final sample (n=16): eight children's nursing students and two mental health nursing students participated in the scenarios with the remaining students acting as observers via a video link. **Qualitative outcomes** • students identified the value of the practical nature of the simulation • some students were uncomfortable with role-play simulations in front of others, although others valued learning from other • students indicated they would like more similar training opportunities in the future, and valued learning together • recommendations for more information on potential triggers was noted and more complex scenarios.
Fenwick et al (2004)[24] Health and social care - large psychiatric teaching hospital (n=1) England.	To set up and evaluate a multidisciplinary suicide assessment training course for ''front-line'' clinical staff.	Frontline clinical staff (n=109). Including psychiatrist (n=5), psychiatric nurse (n= 60), social worker (n=9), psychologist (n=2), occupational therapist (n=11), other mental health worker (n=13), GP (n=6), other non-mental health worker (n=3).	Comparative intervention study with self-report measures.	**Length and method of delivery** *Workshop* Introductory lecture followed by three small group sessions of 60 minutes, and a closing plenary lecture of 45-minutes. (n=88). *Lecture* Half day lecture (n= 21) included 2x one-hour talks, followed by a large group discussion on role-play scenarios between trainees. **Content** *Workshop* themes included: • assessing risk after deliberate self-harm • assessing risk in the hospital setting • assessing risk in the community • assessment of an actor role-playing scenario. *Lecture* content included: • risk assessment in suicide. **Other characteristics** One of the group tutors in each pair of facilitators was a consultant or senior trainee psychiatrist and the other a senior nurse.	Final sample (n=94). **Quantitative outcomes** • no significant differences in the baseline scores for the Suicide Intervention Response Inventory (SIRI-2) (t-test 0.985, p=0.327) • no significant differences in confidence in clinical management scales or attitude to training: ''I can recognise a potential suicide risk'' (t-test 0.034, P=0.973), ''I can deal with the needs of suicidal clients'' (t-test 1.91, p=0.06) or the attitude to training questions (t-test 0.985, p=0.327) • a reduction in SIRI-2 scores (a lower score is better) which was sustained at two months: SIRI-2 pre-training mean (standard deviation) of 55.90 (19.60) and at two-months 51.47 (5.72) • analysis of variance indicated that both methods of training (workshops and lectures) were equally effective in improving trainee skills on our outcome measures. **Learning points:** • both types of training were well received • positive comments by workshop trainees included ''the role-plays although daunting was a good way to learn and share ideas'' • lecture group appreciated the opportunity for discussion, but suggested a longer teaching session • using actors to role-play patients need not be excessively time-consuming and appears to be greatly appreciated by trainees.

Gask et al (2006) [27] Healthcare - mental health services (n=3) England.	Evaluation of Skills Training On Risk Management (STORM)	Front line mental health staff: nurses (n=218), nursing assistants (n=95), doctors (n=26), senior house officers (n=13), medical students (n=5), psychiatrists (n=5), junior doctors (n=3), occupational therapists (n=25), support workers (n=23), nursing students (n=21), social workers (n=13), administrative/support staff (n=2), clinical psychologist (n=1), art therapist (n=1).	Quantitative survey evaluation with pre-test/post-test design (n=143). Qualitative interviews (n=16) with trainers. To evaluate the skills training, volunteers were videotaped carrying out an assessment of a role-played patient.	**Length and method of delivery** Four modules (two hours each) delivered over 1-2 days across a 6-month period. Training included: • brief lectures on background knowledge and the skills to be acquired and rehearsed • focused group discussion • modelling using STORM videotape material demonstrating the skills being used by healthcare staff • role-play in trios (staff-client-observer) using preprepared role-play scripts to facilitate the practice of specific microskills • video-feedback in small group setting of recorded roleplayed interviews carried out by course participants • provision of a manual. **Content** Modules covered: • Assessment • Crisis management • Problem solving • Crisis intervention. **Other characteristics** Training was by three mental health nurses: two trained in cognitive behaviour therapy. Trainers received training and regular supervision from two psychiatrists who devised the STORM package.	Final sample (n= 458). **Quantitative outcomes** • from before training to immediately post-training, all changes in attitudes were in the direction of improvement, with statistical significance • using the Attitudes to Suicide Prevention Scale (ASPS), from before training, seven of 14 items improved and remained statistically significant at four-months follow-up • compared with before training, there were statistically significant improvements in confidence both immediately after training and four-months post-training • for the Suicide Intervention Response Inventory, no differences were found pre- and post-training. Feedback on the training was obtained from 394 trainees (86%): • 301 (76%) enjoyed the course 'definitely', 90 (23%) 'somewhat' • 310 (79%) thought that the skills and techniques taught were 'useful', 81 (20%) 'somewhat' • 295 (76%) thought the group feedback sessions were 'useful', 295 (76%) 'definitely', 91 (23%) 'somewhat' • feedback on specific components of the training (role-play, use of video and content of training) was also strongly positive. **Qualitative outcomes** • STORM training was positively received, with clarity on what was required • role-play and video feedback were positive • participants preferred senior management involvement in the training and role-plays • training was said to boost confidence.
Gask et al (2017) [26] Education – University (n=1) England.	Research questions: what was the impact of the training intervention on the skills, attitudes, confidence, and satisfaction of gatekeepers? What were their views of the impact of training on their everyday work?	Self-selected staff, including counsellors, teaching administration, teaching staff, student support and services, security/estates and nightline) (n=20).	Exploratory pilot study, with questionnaire evaluation. Follow-up: immediately before and after training, and three months post-training.	**Length and method of delivery** The original STORM® training intervention was adapted for use in non-health-care settings (for five hours over one-day). Format involved a brief lecture (40 minutes), 10-minute video, and 10-minute role play. Each triad then reflected on what went well in the role-play, and what might have been done differently. **Content** Two modules (each two-hours duration): • (a) understanding self-harm, and assessment of suicide risk • (b) immediate management of suicide risk and safety planning. **Other characteristics** Training was carried out by one of the authors who is an experienced STORM trainer.	Final sample (n=20). **Quantitative outcomes** • using the Attitudes to Suicide Prevention Scale (ASPS), significant change from pre- to post-training was seen for: 'asking about alcohol' ($p=0.01$), 'exploring suicidal thoughts' ($p<0.01$) 'exploring specific plans' ($p<0.01$), 'exploring factors which make suicide more likely' ($p<0.01$), 'access to any lethal methods of suicide' ($p=0.03$) • compared with before training, there were statistically significant improvements in perceived level of confidence ($p < 0.01$ on all 7 items), both immediately after training and three months post-training • 75% of participants reported that they 'definitely' enjoyed the course and 'definitely' found the skills and techniques acquired on the course relevant to be their work/practice • 85% found the DVD demonstration a useful way of teaching skills • 85% 'definitely' found the role rehearsal exercise useful.

Gask, Coupe and Green (2019) [25] Healthcare -Health boards (n=8) Scotland.	Explore how to cascade STORM training.	Participants trained (n=30): community psychiatric nurse (n=8), staff nurse (n=6), ward manager (n=1), GP (n=3), clinical psychologist(n=3), occupational therapist (n=3), OT technician (n=1), chaplain ((n=1), health visitor (n=1), memory clinic nurse (n=1), support worker (n=1), blood borne virus nurse (n=1).	Qualitative structured interviews.	**Length & method of delivery** STORM training comprises of four educational modules (each two to three hours) delivered flexibly Involves a brief lecture, videos, role-play, video-feedback on performance and a handbook. **Content** Four modules: assessment, crisis management, problem-solving, crisis prevention. **Other characteristics** Facilitators were trained by existing STORM trainers.	Final sample for interviews (n=30; recipients of training). **Qualitative outcomes** for recipients of training found: • a lack of engagement from participants • a lack of engagement from consultants • importance of managerial assistance • a positive impact on clinical practice.
Gask, Lever- Green & Hays (2008) [28] Healthcare - National Health Service, Council and voluntary organisation staff Scotland.	Explore outcomes of STORM training.	Health care workers (n=203): including nurses (n=77) social workers (n=41) support workers (n=19), doctors (n=16), psychiatrists (n=3), health visitors (n=5), occupational therapists (n=4), a housing officer (n=1), nursery nurses (n=2), and a police officer (n=1).	Mixed methods pre- and post-intervention study including questionnaires. Follow-up: immediately prior to training, immediately post training, and six months post training.	**Length and method of delivery** Two groups: delivered over four consecutive days or two two-days sessions over three weeks. Involves a brief lecture, videos, role-play, video-feedback on performance and a handbook. **Content** Four modules: assessment, crisis management, problem-solving, crisis prevention. **Other characteristics** Training was carried out using trained facilitators (n=12, nurses, psychologists, social workers, managers, and a service user).	Final sample (n=203) follow up questionnaire (n=60). **Qualitative outcomes** • immediately post-training, 12 items on the Attitudes to Suicide Prevention Scale (ASPS) significantly improved ($p<0.05$), and five items at six-months follow-up • immediately post-training and at six-months follow-up, all Visual Analogue Confidence Scale items significantly improved (p=0.000) • for each item, the majority of people were 'entirely satisfied' (n=60–92%) found the course enjoyable, useful and relevant, and with the right amount of detail. • lowest satisfaction scores related to people watching themselves on video in the 'therapist' role yet only 6% reported this as being 'not at all' useful. • training was said to address attitudes and knowledge in a non-threatening way. Positive value was found for networking with colleagues and mutual learning. **Qualitative outcomes** • participants felt the training addressed both attitudes and knowledge in a non-threatening way • for each item of the course, most (60-2%) of the participants rated it enjoyable, useful, relevant, and with the right amount of detail • lower satisfaction scores concerned participants watching themselves on video and reluctance to participate, but • there was some concern about local applicability of STORM.
Gibson, Carson and Houghton (2019) [29] Higher Education (n=1) England.	To provide an educational intervention for student nurses to change negative attitudes	Adult nursing students (n=80).	Intervention and evaluation with pre- and post-test measures.	**Length and method of delivery** 45-minute intervention, including written information and video clips. **Content** A combination of facts, personal stories and clips (including celebrity stories) to outline the different methods and reasons people have for self-harming.	Final sample (n=55). **Quantitative outcomes** • the mean (Self-Harm Antipathy Scale) SHAS score before the intervention was 79.39 (SD=18.00), compared with 68.07 (SD=16.68) after (Wilcoxon matched pairs statistic z=–5.303, P=0.001) • total SHAS scores were significantly different before and after the intervention between students who had positive attitudes towards people with mental illness and those who had more negative attitudes towards them (69.59 to 60.08) • no significant differences between older and younger students on the SHAS

	around self-harm.				• if a participant had a friend or relative who had self-harmed, they were much more likely to have positive attitudes towards people who self-harm.
Gray et al (2019) [19] Healthcare NHS Child & Adolescent Mental Health Services Health Boards (n=6) Wales.	To assess the impact of Wales Applied Risk Research Network (WARRN) on clinical practice within Child and Adoles-cent Mental Health Services (CAMHS) in Wales.	CAMHS Clinicians using WARRN (n=451).	Service evaluation using an online survey (n=6).	**Length and method of delivery** Two-day course using a train-the trainer approach taken to cascade training. **Content** Modules covered: • basic clinical skills, conducting a clinical interview, techniques for asking difficult questions • how to formulate and produce risk management plans • essential need for documentation and communication of presenting risks and the reasons underpinning these risks are highlighted • the value of co-production with the service-user and family/carer.	Respondents to survey n=117 (26% response rate). Final sample for analysis (n=88), with 29 individuals removed due to only providing demographic information. **Quantitative outcomes** WARRN training was found: • not to be helpful for asking socially stigmatic questions relating to violence or suicide • but was helpful for formulation, general public safety and communication (p<.05), service-users safety, lives saved, and serious untoward incidents (p<0.01) • time impact was evenly split between favourable and unfavourable responses (p<.05). **Qualitative outcomes** • 38.6% (n=34) felt WARRN's biggest impact was on improving multi-agency working, information sharing and communication • 50% (n=44) identified WARRN was extremely useful for risk formulation and risk management planning • 11.4% (n=10) reported WARRN helped with clarity of thought regarding risk • 44.3% (n=39) reported WARRN documentation too long • 20.5% (n=18) felt WARRN had allowed for a pan-Wales risk assessment process with a common language • 32.9% (n=29) reported WARRN as a valuable tool for conceptualisation and clinical reflection • 21.6% (n=19) biggest impact on introducing safer working practices • 23.9% (n=21) suggested more regular refresher training.
Griesbach et al (2008)[51] National programme Scotland.	Evaluation of the impact and effective-ness of ASIST in Scotland.	Participants who have received ASIST training between 2003-2007 (n=2,000).	Mixed methods evaluation: course survey and participant interviews.	**Length and method of delivery** ASIST training was delivered over two consecutive days in a lecture and workshop format, using observation and role-play in groups. The workshop uses a 20-page workbook and two videos. At the end of the course, participants receive a Suicide Intervention Handbook and a pocket card featuring the main principles of the Suicide Intervention Model. **Content** • preparing: sets the tone, norms, and expectations of the learning experience • connecting: sensitises participants to their own and others' attitudes towards suicide • understanding: provides an overview of the needs of a person at risk – participants gain the knowledge and skills to recognise risk and develop a "safeplan" to reduce the risk of suicide • assisting: presents a model for effective suicide intervention – participants develop their skills through observation and supervised simulation experiences in large and small groups • networking: information about resources in the local community. **Other characteristics**	Final sample (n=534), of which 22 also completed an interview. Both sets of data were combined and analysed using the Kirkpatrick model. **Quantitative and qualitative outcomes:** • the majority of participants reported positive reactions to the training and found it to be useful and relevant • those who found ASIST to be most useful were likely to be local government and voluntary sector staff and individuals who perceived themselves to have low levels of suicide intervention confidence, knowledge and skills prior to attending ASIST • the most useful elements of training were deemed to be the discussion of attitudes to suicide prevention, and learning the ASIST suicide intervention model • negative reactions from participants included negative emotional reactions, some dislike of the role-play element, and mixed views on the suicide intervention model and other aspects of ASIST • participants who had intervened with someone at risk of suicide prior to attending ASIST were more likely to have higher levels of pre-course and post-course confidence, skills and knowledge • ASIST was reported to have a number of positive impacts including reducing stigma and raising awareness of suicide within organisations and communities • barriers were also noted included there was little take-up of ASIST among GPs and other primary care staff, NHS hospital staff, ambulance staff and addictions workers, which was attributed to the two-day commitment required by the ASIST workshop • few participants (11.3%) said their level of confidence was 'high' or 'very high' before ASIST, whereas three-quarters of participants (76.8%) said their level of confidence was 'high' or 'very high' immediately after ASIST • few participants (15.1%) said their level of knowledge was 'high' or 'very high' before ASIST, whereas most participants (85.4%) said their level of knowledge was 'high' or 'very high' immediately after ASIST • few participants (11.9%) said their level of skills was 'high' or 'very high' before ASIST; whereas three-quarters (75.2%) said their level of skills was 'high' or very high' immediately after ASIST

				Trainers are given detailed instructions about the precise timing of each part of the course, the layout of seating and the materials to be used at each stage.	• more than half (58%) of participants reported they had intervened with a person at risk of suicide prior to their ASIST training. The number of participants who reported intervening following training rose to over three-quarters (78%). This finding represents a 20% increase in intervention following training • only 4% of survey participants reported having had experiences using ASIST when it did not go well • participants interviewed for this study highlighted several elements they felt have gone well in their interventions with individuals at risk using the ASIST model. The main elements that were perceived as helpful included: being able to recognise the signs in someone thinking of suicide, having the confidence to ask a person directly whether they are thinking about suicide, having a structured model to follow through, and being able to establish a "safe plan" and link the person to resources • the most challenging aspects of using ASIST, according to participants, is asking people directly about suicide and being personally involved • interveners reported higher levels of confidence, knowledge and skills both before training and at follow-up, than non-interveners (p=0.01).
Griesbach & Russell (2011) [48] National programme Scotland.	Evaluate the effective-ness and impact of the nationally cascaded 'Choose Life' training program.	Participants in Scotland who have received the 'Choose Life' training (n=1200). 'Choose Life' training involves either: ASIST, STORM, or safeTALK training.	Mixed-methods evaluation using Kirkpatrick Model: survey of Choose Life participants.	**Length and method of delivery** *ASIST* Delivered over two consecutive days in a workshop format, using observation and role-play in groups. *STORM* Four half-day modules using role-play, video feedback, and self-reflection. *safeTALK* Half-day training programme. **Content** *ASIST* To assist recipients to be more willing, ready and able to recognise and intervene for people at risk of suicide. *STORM* To develop complex skills in: • assessment • crisis management • problem solving • crisis prevention. *safeTALK* To teach participants to recognise and engage with people who may be having thoughts of suicide.	Final sample n=154 of survey respondents: social workers (n=33), local authority employees (n=17), voluntary sector employees (n=33), NHS employees (n=28), education sector employees (n=20); substance misuse service workers (n=12), and 'other' (n=11). **Quantitative outcomes** Recipients of training: • were much more likely to intervene with someone at risk in both their personal and professional lives • were more likely to ask someone if they were thinking of suicide, link the person to someone who could help, and make a plan with the person to keep them safe following the training • discussed that they were much more likely to intervene with a female, and those under the age of 55 years who were at risk of suicide • discussed how the training has helped them with their day job and has provided them with the tools to deal with these situations • highlighted practical barriers, mainly that the interventions are time consuming, and it can be difficult to take time to speak to someone who may be at risk.
Hayes et al (2008)[50] Prison service setting (n=3) England.	To improve the identification of prisoners at risk of suicide and self-harm	Prison staff (n=182).	Pre- and post-training questionnaire. Follow-up at T1, T2, and T3. T1 = Pre-training T2 = Immediately after training	**Length and method of delivery** Adaptation of STORM training, involving a lecture-style presentation, a demonstration video, role plays, and group feedback. **Content** Usual STORM topics with the addition of suicide and suicide risk in custody. **Other characteristics**	Final sample of n=161 who completed the STROM training and the questionnaires. **Quantitative outcomes** • significant improvement in scores on attitude, knowledge, and confidence between T1 and T2 (a lower Attitude to Suicide Prevention Scale) score marks found more than half the responses found the videotaped positive attitude) (p<0.001) • analysis of those who completed questionnaires at follow-up showed significant differences between timepoints in measures of attitude, knowledge, and confidence (p<0.001) • for Awareness of Suicide Risk Issues and confidence scales, T3 scores were significantly lower than T2, but also significantly higher than T1 (p<0.001)

			T3 = 6-8 months after training.	'Train the trainer' model was used. Initial training was undertaken by two of the authors	• scores on the items examining likelihood of contact with suicidal people Positive were very high and did not alter between timepoints in either analysis (p>0.05) • 78% enjoyed the course • 95% would recommend the course to colleagues • 94% thought the skills and techniques relevant to their work • higher satisfaction scores were found for lecture (93% positive), group feedback (91%), training video (77$), and role play (71%) elements, with lower satisfaction for videotaped interview (42%).
Heyman, Webster, and Tee (2015) [30] Education – University (n=1) Scotland.	Advance understanding of the student experience of Applied Suicide Intervention Training (ASIST) and the impact on learning.	Volunteer second year mental health nursing students who had participated in ASIST training previously (n=10).	Phenomenological inquiry using focus groups (n=2 groups).	**Length and method of delivery** The ASIST workshop was conducted over two consecutive days, and involved a combination of a brief lecture, group work, skills practice and role-play. v The workshop was conducted Carried in a classroom environment to allow feedback of performance. **Content** The workshop focused on eliciting individuals' attitudes to suicide and sharing personal and professional experiences of suicide. **Other characteristics** Workshop provided by the ASIST facilitation team.	Final Sample (n=10 participants). **Qualitative outcomes** Three dominant themes emerged from the discussions: • emotional demanding – intensity of the workshop heightened awareness of the content matter • emotional intensity – personal emotional investment was intense, but enhanced participant's ability to support those that they care for • emotional exhaustion – content may not be positive, but emotional investment was needed to reflect on practices.
Holdsworth, Belshaw, and Murray (2001) [31] Healthcare - Accident & Emergency (A&E) (n=4), Minor Injuries Units (MIUs) (=2) Medical Admission Units (MAUs) (n=2) UK.	Evaluation of a programme of education and training in assessing and respond-ing to people who self-harm	A&E nursing staff and medical administration units (n=13).	Before- and after-questionnaire evaluation, completed two weeks prior to the first workshop and after the final workshop.	**Length and method of delivery** Five half-day workshops which were divided by two weeks of uninterrupted practice. Written materials were provided as a workbook and resource pack for each participant's work environment and colleagues. **Content** Workshops covered: • Assessment of suicide risk • Responding to repeated deliberate self-harm (DSH) • Risk assessment instruments and documentation • Practice feedback reflection	Final sample (n=13) from A&E and MAU staff. **Quantitative outcomes** • all participants reported that the sessions had increased their professional knowledge 'a little' (n=1), 'a great deal' (n=8), or 'a very great deal' (n=3). • one participant believed that the workshop sessions had not helped to develop any work-related skill; others believed that they had developed a work-related skill either 'a little' (n = 2), 'a great deal' (n = 8) or even 'a very great deal' (n = 1). Self-reported skill-developments reported: • improved ability to elicit the intent of the person who deliberately self-harms • ability to explore with the carer of some patients what alternative responses to acts of deliberate self-harm might be helpful • Increase in the ability and confidence of participants in assessing level of risk represented by presentations of deliberate self-harm and attempted suicide.

Holliday et al (2020) [32] Education – University (n=1) England.	Evaluate the educational experience of the 'Shared Learning to Improve the Care for Young People and Mental Health within Nurse Education' (SHYNE) programme.	Final year child and mental health nursing students (n=110).	Uncontrolled, pre- and post- design, of the impact of a simulation-based education sessions.	**Length and method of delivery** One session consisted of two specific simulation scenarios of 45-90 minutes, employing young actors from a local theatre group to play a young person. **Content** Sessions were centred on the assessment and care of a young person who had self-harmed and who was currently admitted to a paediatric inpatient setting. Students in groups of six, were asked to take on a specific role relevant to their field of nursing during simulation. Remaining students observed the scenario via video link. **Other characteristics** Two facilitators (one mental health field lecturer and one child field lecturer) led the scenario.	Final sample (n = 100) completed post-simulation outcome measures. **Quantitative outcomes** • attitudes towards self-harm were measured using a 13-item self-report questionnaire, which found that the students reported a statistically significant *improvement* in attitudes, for all three subscales of 'effectiveness' ($p < .001$), 'negativity' ($p < .001$), and 'worry' ($p < .01$) • confidence of caring for children and young people (CYP) who self-harm was measured through seven Likert scale responses relating to different areas of nursing practice, which found a significant difference ($p < .01$) between the percentage of participants agreeing to six of the seven statements post-session compared • self-efficacy for working with children and young people who have self-harmed was measured through an adapted version of the Self-Efficacy Towards Helping (SETH) scale, which found significant increase in self-efficacy towards caring for someone who had self-harmed post-session ($p<0.01$).
Kerr, Martin, and Fleming (2018)[33] Education – University, (n=1) UK	To determine the impact of SafeTALK on student mental health nurses general perceived self-efficacy.	First year student nurses studying adult or mental health nursing (n=128)	Exploratory study, including survey design with repeated measures taken pre- and post-SafeTALK training.	**Length and method of Delivery** SafeTALK was a 3.5 hours training course using video clips, practicing communication and listening skills and group discussion. **Content** Talking about suicide, practice using steps of suicide alertness and to provide information for people with suicidal thoughts so that they can access further help. **Other characteristics** An experienced SafeTALK facilitator led the sessions.	Final sample (n=128). **Quantitative outcomes** • General Perceived Self-Efficacy (GPSE) scale showed mean scores for females rose from a pre training level of 29.06 to 31.85 post training, and from 29.67 to 34.00 for males • a 2×2 ANOVA was revealed an effect of time ($F (1, 118) = 20.07$, $p = .001$).

Manning et al (2017) [34] Healthcare – acute NHS Trust (n =1) Location unspecified.	Determine the impact of a digital educational intervention on the knowledge, attitudes, confidence and behavioural intention of registered children's nurses working with children and young people (CYP).	Children's Nurses (n=98).	Uncontrolled pre- and post-intervention assessment and semi-structured interviews.	**Length and method of delivery** Digital educational intervention consisting of three reusable learning objects (RLOs) delivered via a range of multimedia. **Content** RLOS included: • understanding self-harm and care pathways for CYP admitted to hospital • effective communication with CYP following self-harm admission • assessing risk and managing safety with CYP admitted with self-harm **Other characteristics** Co-produced training with CYP service users.	Final sample (n=51): completed the postintervention questionnaire with 33 of these reporting that they had completed the digital intervention. Eight nurses participated in an interview. **Quantitative outcomes** Improvements were achieved in the following: • attitude towards self-harm improved significantly for the 'effectiveness' subscale (p= 0.008), with no significant change in the 'worry' and 'negativity' subscales. • a reduction (negative effect) in self-efficacy measured by an adapted version of the Self-Efficacy Towards Helping Scale was found (p-0.042). • knowledge of self-harm increased – statistically significant (p=0.013), following sensitivity analysis of only those completing the intervention. • confidence and perceived ability to care for CYP who self-harm demonstrated positive changes in "I have the ability to care for a child or young person who has self-harmed" (p=0.000), "I am able to communicate effectively with a parent/carer of a child or young person who has self-harmed" (p=0.02), "I am confident that I will not make things worse for a child or young person in my care who has self-harmed" (p=0.04). • clinical behavioural intention measured by the Continuing Professional Development Reaction Questionnaire showed via sensitivity analysis that there were significant improvements on three of the five subscales: 'moral norm' (feeling of personal obligation regarding the adoption of the collaborating with CYP who self-harm) (p=0.01); 'beliefs in capabilities about collaborating with CYP who self-harm' (p=0.01) and 'belief about the consequences of not collaborating with CYP who self-harm' (p=0.00). **Qualitative outcomes** • lack of perceived capability was identified as a key motivation for accessing the education, as was a lack of training of this type, and an awareness of inequality • the training was deemed to cover appropriate topics, with the right amount of information which was delivered at the right level • the training package was valued in terms of its modular structure, although there was some difficulty accessing it • all participants reported improved practice and a sense of empowerment and confidence in liaising with CYP, and • training provoked self-reflection.
May (2001)[35] Healthcare - Accident & Emergency (n=2) Location unspecified.	To measure change in multi-professional A&E staff attitudes towards those who present with suicidal behaviour.	A&E staff (n=111): medics (n=22), nurses (n=63), clerical staff (n=6). Control group (n=55) Experimental group (n=56)	Pre- & post-test design with control group. Intervention group received information packs and notice board displays. Control Group did not.	**Length and method of delivery** Three notice board displayed each on a weekly basis, with a final week of all boards displayed as a complete set of three. information pack distributed to those completing the questionnaires in the intervention group. **Content** Intervention group received information packs and notice board displays. Control Group did not.	Final sample (n 55) for those who completed the baseline questionnaire. **Quantitative outcomes** • results show that A&E staff attitudes to those presenting with suicidal behaviour were generally positive at baseline and preintervention (Mean 61.76, standard deviation (SD) 6.45), as this mean score is close to 64 which could be achieved by participants scoring 4/6 on all questions. • the post-intervention results did not demonstrate a significant ($p > .05$) effect in improving attitudes between the control (Mean ranks =25.39) and experimental groups (26.33), suggesting that the intervention had no effect on improving staff attitudes to suicidal behaviour.
McLean et al (2007) [46] Community settings Scotland.	Evaluate stakeholder views towards, and relevance of safeTALK.	Community members with a range of backgrounds (n= 239), trainers (n=39), and sponsor representatives (n=4).	Mixed methods evaluation: course survey and participant interviews.	**Length and method of delivery** Half-day training for each participant. **Content** Focused on awareness and how to recognise and engage persons who might be having thoughts of suicide and to connect them with community resources trained in suicide intervention.	Final sample: survey (n=239), of these 34 completed an interview. 35 people who were ASIST-trained but had not been involved in the safeTALK roll-out completed the email survey. Four trainers completed a focus group, two completed telephone interviews. Four sponsors completed a focus group.

					Quantitative outcomes *Participant feedback:* • 53% had not received suicide related training before • 75% had experience of talking to someone with suicidal thoughts • 71% of those with over two-days training in suicide prevention had talking to someone about their thoughts of suicide more than 20 times • 58% of participants felt either well or mostly prepared to talk openly about suicide to people about their thoughts of suicide, which increased to 85% after the course • 40% who felt either partly or not prepared to talk about suicide before the course, decreased to 10% after the course • no one felt that the course had made them feel less able to handle the situation • over 80% of all respondents reported that after the course they were either more likely or much more likely to recognise the signs of someone being at risk of suicide, to approach the person, to ask them directly whether they were having suicidal thoughts and to be able to connect them to help • 62% agreed that the trainer was well-prepared • 11 participants indicated they would like more role-play in the training • five participants thought the videos were hard to follow and unrealistic • there was a suggestion that safeTALK should be available to new staff or those early in the job. **Qualitative outcomes** • those who worked in professions outside the care sector said that the course had an impact on their awareness of suicide • of those who worked in caring professions, only one person said that the course had increased her awareness • fourteen interviewees felt that the course had helped them recognise the signs of someone being at risk of suicide • ten interviewees who were new to suicide prevention training felt that the course had changed the way they would respond if they thought someone was at risk, with only one person feeling that it had not made much difference • those working in mental health-related professions were just as likely to feel that the course had changed the way they would respond to someone at risk of suicide as those working in different types of jobs • almost all of those in professions without a mental health remit suggested that prior to the safeTALK training, they would not have asked people at risk if they were thinking of suicide, at least not right away • five interviewees felt that a main impact of safeTALK training was the way in which its counteracted stigma and gave people the chance to talk about the difficult topic of suicide • challenging the stigma that surrounds suicide and the fear of broaching the subject were key positives • praise for the videos in terms of being useful examples and provoking discussions was made • it was recommended that videos be tailored to the context • some participants found the role play uncomfortable, and some asked for a refresher course • it was felt that safeTALK fitted well with ASIST training • there was a recommendation that safeTALK should be provided to as many people as possible

Mellanby et al (2010) [47] Education – University (=1) Scotland.	Evaluate the short-term efficacy of safeTALK workshop at improving suicide awareness and intervention skills.	Veterinary undergraduate students (n=17) and academic director of studies (n=5).	Mixed methods study including post- intervention self-report measures and post workshop focus group and questionnaire.	**Length and method of delivery** • A 3 hour face-to-face workshops were run for students at the University • two-day face-to-face workshops for academics at the Scottish Association of Mental Health head office. **Content** Students received safeTALK workshop, covering: • a 10-minute introduction given by the course organiser • content on the skills to be better able to recognise, engage with and keep colleagues that have suicidal thoughts safe. Academics received an ASIST workshop. The content was not specified. **Other characteristics** Training delivered by an "experienced trainer" from the Scottish Association of Mental Health	Final sample n=30. 26 students attended the workshop, 17 completed a feedback questionnaire from the first workshop (65%). The qualitative outcomes are based on 5/17 who attended the focus groups, and an additional three who attended the second workshop. Five academics completed the post workshop questionnaire. **Quantitative outcomes** *Students:* • a mean of 8.1 (range 4 to 10) was obtained by students reporting how likely they were post workshop at recognising signs of a person at risk of suicide • a mean of 8.4 was obtained for whether students would recommend other veterinary student/veterinarians to take the workshop. • a mean of 8.1 (range 5 to 10) was obtained when students asked how they rated the workshop • 9/17 reported they would be much more likely to approach a person at risk of suicide, when compared to how they felt before the workshop • 9/17 reported they would be much more likely to connect a person at risk of suicide with help, when compared to how they felt before. *Academics:* • a mean of 8.6 was reported by academics on how likely they are post workshop at recognising signs of a person at risk of suicide • a mean of 8.0 (range 4 to 10) was obtained for asking students if they were likely to recommend to other veterinary student/veterinarians to take the workshop. • a mean of 8.8 (range 5 to 10) was obtained when asking students how they rated the workshop. **Qualitative outcomes** • students felt that the most useful aspects of the training were deemed to being told it is okay to talk openly about suicide, the contact lists, discussing how to approach the subject of suicide itself and 'the videos of example scenarios. Students highlighted how they felt it was an important topic. It was noted that others may have felt the focus on the workshop was to manage suicidal thoughts in themselves rather than supporting others. Students also felt the opt in and out option may have been impacted on previous experiences of previous option workshops which were a "waste of time" and that "people just focus on exams" so others did not see the workshop as important • three students who attended the second workshop noted they attended the workshop because they wanted to be better able to identify at-risk individuals, signs of suicidality, and be equipped if others want to talk about suicide • additional comments (from all) included that the workshop was "a really worthwhile workshop – useful to everyone. such an important topic – glad it's being brought up"; "Very helpful and informative"; "I would like to see this as a mandatory lecture for freshers and fifth years." and "I think all vet students should be greatly encouraged to take the workshops." It was additionally noted the benefit of using students to market information to the rest of their year which was deemed an effective method. *Academics:* • most useful aspects of the training was deemed to be discussing phrases that are appropriate to use when talking to a person at risk, group discussions and videos showing scenarios • academics recommend the training to others • it was found to be useful for those in pastoral roles • academics recommended that the workshop is mandatory for those in student affairs and director of studies.

Morgan et al (1996) [36] Healthcare – Setting and sample unspecified. England.	Assess attitudes towards suicide prevention.	Approved social workers (n=29), prison medical officers (n=25), mixed GP's & psychiatrists (n=26), GP's (n=11), mixed mental healthcare professionals (n=17), trainee psychiatrists (n=12) (total n= 153)	Pre- and post-intervention with participants acting as their own controls.	**Length and method of delivery** Each lecture (n=8) lasted 50 minutes, with a discussion of up to 20 minutes. **Content** • basic statistics and clinical facts about suicide • discussion of good clinical practice in the assessment and management of suicidal persons • appropriate organization of clinical services • debate allowing for challenge of negative attitudes. **Other characteristics** Professor of Mental Health facilitated the sessions.	Final sample of completed forms n=138. **Quantitative outcome** *Pre-test* Baseline attitudes (pre-test) indicate a third of the responses were initially either equivocal or negative in attitudes to the concept of suicide prevention with negative responses 11%-36%. *Post-test* • a reduction in negative attitudes was reported ($p<0.05$), together with a reduction in negative attitudes ranging from 20-66% • an overall 45% average reduction in negative attitudes was achieved • lecture should be stand alone and not part of another course or conference.
Morriss et al (1999)[37] Healthcare – frontline workers (n=sample, and location unspecified)	To devise and evaluate the retention of a brief training package for non-psychiatrically trained multidisciplinary staff.	Health, social care and voluntary workers (n=33).	Controlled pre- and post-test evaluation with participants acting as their own controls. Assessments made pre- and one-month post-training.	**Length and method of delivery** Eight hours (4x2hour weekly sessions), utilising interview skills training, role play with modelling and video feedback. Written handouts used as supporting material. **Content** • assessment of risk • crisis management • problem solving • crisis prevention **Other characteristics** All trainers were psychiatrically trained.	Final sample (n= 33). **Quantitative outcomes** Significant improvements were found in: • risk assessment (p=0.022) • risk management (p=0.018) • confidence (using Suicide Response Inventory-2) • eliciting suicidal ideas and plans (p=0.021) • adequate problem solving (p=0.031) • future coping if the patient felt suicidal (p=0.039). No significant improvements were found in: • obtaining immediate support (p=0.08) • combating hopelessness (p=0.77) • follow up by health professional (p=0.75) • removing lethal weapons (p=1.00) • general interview skills.
Morriss et al (2005) [16] Healthcare – A&E frontline professionals(n=3) England.	To analyse suicide rates pre- and post- roll-out of STORM training.	Qualified professionals in primary care, GP's, accident and emergency, and mental health (n=167).	A before-and-after training intervention analysis.	**Length and method of delivery** Four to eight hours of training delivered over six months. **Content** STORM training: • suicide risk assessment and immediate management of suicide risk • problem-solving • crisis prevention. **Other characteristics** Three mental health professionals delivered the training.	Final sample (n=103) completed all training sessions available in STORM training. **Quantitative outcomes** • the suicide rate in 1994–1996 was 8.8 per 100 000 before our educational intervention and unchanged at 8.6 per 100,000 in 1998–2000. • no evidence that the STORM programme was effective in reducing the suicide rate in South Lancashire ($x2=0.05$, $df=1$, $p=0.825$).
Naylor et al (2009)[38] Education - Secondary schools (n=2)	Assess the impact of a mental health teaching programme	Secondary school students aged 14-15 years old Intervention group (n=174), control group (n=242).	Pre- and post-intervention, with follow-up at six months post-intervention.	**Length and method of delivery** Intervention school received a teaching intervention of six 50-minute lessons on mental health issues. The control group school was given access to the intervention teaching materials on completion of the research.	Final sample (intervention group n=149, control group n=207). **Quantitative outcomes** *Mental Health Questionnaire results* Intervention group showed improvements in: • number of valid mental health difficulties identified (p=0.01)

England.	on adolescent pupils' under-standing.			**Content** Lessons (n=6) on mental health issues common to young people: • stress • depression • suicide/self-harm • eating disorders • bullying • intellectual disability. Materials based on Royal College of Psychiatrists resources. **Other characteristics** Group tutors received one day training from psychologists (also qualified secondary school teachers), Children and Young People psychiatrist, service user, school head of year. Tutors delivery of lessons was monitored and regular debrief meetings held.	• number of valid ideas about why people are bullied (p=0.013). • awareness of why people are depressed (p=0.03). • no significant differences on awareness of why people feel suicidal, why people bully others, and the effects of bullying. *Strengths and Difficulties Questionnaire results* Statistical differences were found between school scores, with the intervention school having better outcomes on: • conduct problems (p=0.0008) • prosocial behaviour (p=0.006) • no significant differences found for emotional symptoms, hyperactivity. peer problems and total difficulties. Pupils also valued the intervention highly in particular the lessons on suicide/self-harm.
Owens & Charles (2017)[39] Community settings England.	Assess usefulness of a public suicide leaflet strategy.	Public leaflet drop (n=14,8000 leaflets).	Interview study with every agency on the distribution list and in-depth qualitative interviews with a purposefully selected sub-sample.	**Length and method of delivery** A tri-fold, eight panel, leaflet distributed to community settings such as GP practices, Citizen Advice Bureaus other statutory and voluntary organisations. **Content** • structured around the See-Say-Do model, explicitly addressing misconceptions, cognitive biases, and fears around suicide • introduced suicide, and to the possibility of suicide in family, friends • risk factors • warning signs • provided advice on asking about suicidal thoughts. **Other characteristics** Leaflet was co-produced with people with lived experience of suicidality (bereaved families).	**Qualitative outcomes** • perceived usefulness & acceptability was positive • no concerns were expressed regarding the content • the leaflet was found to fill an important gap, and was used in display racks, in consultation appointments, and to equip workforce conversations.

Patterson, Whittington, & Bogg (2007) [40]
 	
Healthcare – unspecified setting, location, and sample size.
	Testing effective-ness of an educational intervention aimed at changing attitudes to self-harm.	Qualified healthcare professionals (n=89).	Quasi-experimental design with data collection before (T1) and after (T2&3).
			T1–commencement of course
			T2 – last day of course (15 weeks after T1)
			T3 – between 18-48 months post-completion.
				Length and method of delivery
				Accredited course over 15 weeks, delivered over 12 separate study days (78 hours).
				Participants were asked to engage in reflective practice with the support of a practice mentor.
				Module ran six times over four years with group sizes ranging from 8-16.
				
				Content
				Seven themes:
				1. explanations and causes of self-harm and suicide
				2. range, forms and functions of the behaviour
				3. exploring the possibilities for prevention
				4. effects of, and responses to, the behaviour.
				5. assessment methods and processes
				6. interventions and management of care
					Final sample:
					Intervention group (n=66) completed the accredited course.
					Comparison group: (n=22) participants who attended another course unconnected to self-harm in the same setting.
					
					Quantitative outcomes
					• Self-harm Antipathy Scale (SHAS) showed antipathy in the intervention group was significantly lower at the end of the course (Time 2 mean = 71.72, SD = 16.9) than it had been at the start of the course (Time 1 mean = 80.09, SD = 13.07); this represents an average reduction in SHAS score of 16 points from the baseline, of approximately 20%.
					• a statistically significant reduction in three of the six factors on the SHAS was found:
					  • client intent manipulation
					  • rights and responsibilities-indicating that self-harm was less frequently viewed as morally wrong).
					  • needs function - suggesting a more empathic service user perspective has been developed.

				7. professional practice issues. **Other characteristics** The main facilitator was a registered mental health nurse and author of the study.	
Robertson et al (2013)[41] Healthcare - National High Secure Healthcare Service for Women Unspecified location.	Evaluate the trauma and self-injury (TASI) training programme on staff knowledge and skills.	Nurses and nursing assistants (n=195).	Service evaluation - questionnaires administered pre- and post-TASI training.	**Length and method of delivery** Two-day course delivered to a specific ward area, in a combination of education, case study design, reflective space, and an introduction to intervention forms. **Content** Sessions involved: • an exploration of self-injury and it's possible functions from a woman's perspective • risk aversive approaches to reducing harm • distress signature work • dialectical behaviour therapy • cognitive analytical therapy • cognitive behavioural therapy • eye movement desensitisation therapy • brain biology • symptoms of simple and complex Post Traumatic Stress Disorders and practical ways to help. **Other characteristics** Nursing staff and nursing assistants were involved in developing the training.	Final sample: of 195 staff invited, there was 69% uptake (n=135), with an average of nine staff members attending each day. From 85 pre-questionnaires, 81 were returned (95%). Out of a possible 65 postal questionnaires, 59 were returned (91%). **Quantitative outcomes** Post training responses demonstrated a statistically significant increase for confidence in working with trauma (p=0.001) and self-injury (p=0.001). **Qualitative outcomes** • positive comments stated that the training was informative, interesting and clinically relevant • negative comments referred to how the training did not offer new information and ''acknowledge existing skills'' • 18 participants (30.5%) commented that improvements to the training could be made, including longer training, a different venue, a shorter time period between the first and second training day and a need for more acknowledgement of existing skills.
Robinson, Baybrook, & Robertson (2013)[42] Public forum (n=1) Scotland.	Exploration of emerging consider-ations for a suicide prevention programme.	Public.	Discussion groups (n=10) with men and women at different geographical locations. This study consists of three phases; this paper reports on Phase 3.	**Length and method of delivery** 'Choose Life' public awareness campaign: promoted with a social marketing approach in targeted settings, including pubs, pharmacies, libraries, workplace washrooms, Motherwell Football club, five-a-side football tournaments, taxis and buses, music festivals, and community centres, and through national media, using support materials such as billboards, posters, cards, DVDs, branded football products, newspapers, TV and radio. **Content** • raising awareness of encouraging people to seek help early • provide crisis numbers • challenge stigma around suicide.	Final sample: discussion groups consisted of 3x16-25 year-old (yo) males; 2x16-25yo females; 1x26-35yo males; 3x36+yo males; 1x36+yo females. **Qualitative outcomes** • findings showed that the campaign raised awareness and had a considerable impact in raising awareness on suicide to the general public • awareness was greatest in geographical areas where campaign resources were concentrated • awareness increased - and some stigma mitigated - when men saw the message routinely being endorsed, over time, within trusted settings where they normally go as a lifestyle activity • attitudes of men, among those who were well aware of the campaign, were likely to have changed, being more open to talk about vulnerability, feeling low, suicidal thoughts. • the campaign's effects were also felt by men to be limited by a common male preference for information seeking rather than discussing suicide. • male-friendly environments were seen to be more likely to engage in conversation • the combined use of community settings with more widespread appeal was considered by men • younger people in the discussion groups (16-25yo) favoured messages in preferred lifestyle settings, for example fashion (shops), and music (festivals) • clarity about target audiences and behavioural goals was felt to be important • it was suggested that people with high potential influence, such as barbers, postal workers and shop workers, and more community/voluntary sector workers in areas like physical and leisure activities should undergo basic training towards engaging with the public on suicide prevention

					• findings showed it is vital to reach out separately to middle-aged and older men at risk, for example after unemployment. There is also every reason, as discussion groups said, to target future generations in schools more widely.
Robinson, Baybrook, & Robertson (2014) [43] Public forum (n=1) Scotland.	Exploration of emerging consider-ations for a suicide prevention programme.	Public.	Survey of the public and interviews with 20 key stakeholders. This study consists of three phases; this paper reports on Phases 2 & 3 (see Robinson et al, 2013 above for Phase 3 results).	**Length and method of delivery** 'Choose Life' public awareness campaign: promoted with a social marketing approach in targeted settings, including pubs, pharmacies, libraries, workplace washrooms, Motherwell Football club, five-a-side football tournaments, taxis and buses, music festivals, and community centres, and through national media, using support materials such as billboards, posters, cards, DVDs, branded football products, newspapers, TV and radio. **Content** • raising awareness of encouraging people to seek help early • provide crisis numbers • challenge stigma around suicide.	**Quantitative outcomes** Results showed that: • the proportion of the adult population who were aware of the campaign was less than one-third (25% of female respondents, 29% of male respondents • of participants who were aware of the campaign (28% of all survey respondents), 39% (40% of male respondents) said this made them more aware of services which could provide information or help prevent a suicide, while 40% of respondents were already aware. • the campaign had some success in de-stigmatising public attitudes • there was a positive correlation between levels of campaign awareness and de-stigmatising attitudes in survey results ($t = .19$, $p < 0.01$). **Qualitative outcomes** Results showed that: • younger people (16-25) favoured messages in preferred lifestyle settings, such as retail outlets (fashion/food), and festivals (music) • 'trusted' leisure contexts provide male-friendly environments where men are subconsciously more receptive to health messages • awareness was greatest in geographical areas where campaign resources were concentrated • participants were unsure if materials were reaching marginalised or disconnected groups and felt more materials might be placed in job centres, and other social support settings • it was felt that superficial awareness of the campaign and fleeting messages was unlikely to have a sustained impact • campaign success was deemed to be dependent on strong partnerships with community organisations • campaign was considered to have 'normalised' talk about suicide and feeling low, and to communicate concerns.
Ross-Davie, Elliott, & Green (2007) [44] Healthcare - maternity, (n= unspecified) England.	Evaluate a training day to improve the detection of women with current mental health problems and those at high risk of a serious mental illness following delivery.	Midwives (n=235) and obstetricians (n=10).	Pre and post-test evaluation (one-month post training).	**Length and method of delivery** One day lecture followed by group discussion, group work using scenarios, and paired role play. **Content** Perinatal mental health training day involved: • the political and research context • screening for mental health problems antenatally • group work on mental health promotion • an introduction to mental illness and the implications for pregnancy and parenting • group work using scenarios to develop decision-making on referrals and care planning • perinatal mental illness • case scenario discussions • small group exercises considering 15 brief scenarios.	Final sample (n=245). **Quantitative outcomes** • Post-training questionnaire found statistically significant improvements in confidence and knowledge (*statistics not reported*) • a review of the information written in the handheld maternity records by midwives about mental health before and after the training also suggested that the training had made a positive impact, with more detailed information recorded following training. **Qualitative outcomes** Feedback included: • that participants enjoyed the training • a request, by about half of the participants, for further training on drug treatments, the effects of postnatal depression on the child, psychologically sensitive midwifery care, substance misuse and talking therapies such as cognitive behavioural therapy, counselling and listening skills.
Stephens, Short & Molodynski (2011) [20]	To pilot and evaluate a theatre and mental	Secondary school staff including teaching and pastoral staff (n=21)	Evaluation using pre- and post-training questionnaires.	**Length and method of delivery** Training included a theatre performance followed by two interactive workshops (participants split across two workshop groups). Uses stark realism, anarchic comedy and storytelling.	Final sample (pre-test n=21, post-test n= 15). **Quantitative outcomes** *Pre-training*

Education-Secondary schools (n=not specified) o\z England.	health education program to increase awareness and understanding of self-harm in adolescents and improve awareness of avenues of help.		Seven-items included rating level of agreement with each statement on a 5-point Likert scale, ranging from 'strongly agree' to 'strongly disagree'.	**Content** Play exploring a 15-year-old girl using self-harm as a coping mechanism. Workshop discussion following performance including the girl's family relationships, isolation, self-esteem, the way in which school and health staff managed the self-harm. **Other characteristics** Following the performance participants were then divided into two groups and attended a workshop led by the Personal, Social, Health and Economic education (PHSE) consultant for Bristol, the other workshop led by two CAMHS consultants and a primary mental health specialist.	• Most (n= not specified) had a basic understanding of self-harm. • Only Eight out of 21 participants identified Child & Adolescent Mental health Services as a source of help, 5 mentioned counselling services and 4 social services. *Post-training* • 14 out of 15 respondents indicated an increased understanding of self-harm and confidence to discuss the related issues following the training • 14 respondents indicated that they felt secondary school students would benefit from seeing the play and taking part in the workshops • several respondents (n=not specified) felt it would be beneficial to students but would need adequate planning and preparation and would need to be part of a well-supported programme • nine teachers had reservations about showing the play to students in school. • respondents (n=not specified) identified the need for additional support including better access to school nurses, support structures within schools, clear school policies as to how to respond, counsellors, 'a script to help less confident teachers' and supervision, and training for school staff.

Appendix 4: Table of Recipient Characteristics

Category based on HEE frameworks		Training recipient group	N	Reference
Children and young People		Secondary school pupil	149	Naylor et al., (2009)
		Secondary School staff	21	Stephens, Short & Molodynski (2011)
		Children's nurses	98	Manning et al., (2017)
Adults and Older people	Healthcare	Primary care A&E and mental health services staff	62	Appleby et al., (2000)
		Adults from an A&E	19	Barnes et al (2018)
		A&E staff and junior medical staff	60	Crawford Turnbull & Wessely (1998)
		Healthcare staff	37	Davidson et al, (2004)
		Healthcare staff	94	Fenwick et al (2009)
		Health service staff	458	Gask et al (2006)
		Healthcare staff	203	Gask, Lever-Green, & Hays (2008)
		Healthcare and service staff	30	Gask, Coupe & Green (2019)
		CAMHS clinicians	88	Gray et al (2019)
		A&E nursing staff and administration	13	Holdsworth, Belshaw & Murray (2001)
		Healthcare staff	55	May (2001)
		Healthcare staff	138	Morgan et al (1996)
		Health, social care and volunteer staff	33	Morriss et al (1999)
		Healthcare staff	103	Morriss et al (2005)
		Healthcare staff	66	Patterson et al., (2007)
		Healthcare staff	135	Robertson (2013)
		Healthcare staff	245	Ross-Davie (2007)
	Higher Education	Staff	20	Gask et al (2017)
		First year adult and mental health nursing students	128	Kerr, Martin & Fleming (2018)
		First year child and mental health nursing students	100	Holliday et al., (2020)
		Second year mental health nursing students	10	Heymen et al., (2015)
		Adult nursing students	55	Gibson Carson & Houghton (2009)
		University Students	7	Burford & Hardy (2019)
		Children and mental health nursing student	16	Felton (2013)
		Veterinary students and academic director of studies	26	Mellanby et al (2010)
Community and Public Health		Public	10	Robinson., (2013, 2014)
		Public	Unknown	Owens & Charles., (2017)
		Various	534	Griesbach et al., (2008)
		Various	154	Griesbach et al., (2011)
		Prison staff	182	Hayes et al., (2008)
		Various	239	Mclean
		Total:	3,591	

Appendix 5: Table Detailing Training Length

Paper	< 1 hr	1-2 hr	Half to 1 day	1-2 days	>more than 2 days	Not specified	Total hrs	Overall timeframe
Appleby et al (2000)				2 hr sessions totalling 6-8 hrs			6-8 hrs	6 months
Barnes et al (2018)			6 x 1 hr sessions over 3 months				6 hrs	3 months
Burford & Hardy (2019)			45 mins x 6 over 6 weeks				4.5 hrs	6 weeks
Crawford, Turnbull & Wessely (1998)		1 hr					1 hr	1 hr
Davidson et al (2004)					3 days		3 days	3 days
Felton et al (2013)			60 min prep, 2x45 min simulation, 60 min debrief				3.5 hrs	3.5 hrs
Fenwick et al (2004)			Half day lecture Full day workshop				0.5 day 1 day	1 day
Gask et al (2006)				4 modules delivered over 1-2 days			2 days	2 days
Gask et al (2017)			1 day				1 day	1 day
Gask, Coupe & Green (2019)				2-3 hrs /module (up to 4 modules)			8-12 hrs	12 hrs
Gask, Lever-Green & Hays (2008)					4 days or 2x2 days over 3 weeks		4 days	3 weeks
Gibson, Carson & Houghton (2019)	45 mins						45mins	45 mins
Gray et al (2019)				2 days			2 days	2 days
Griesbach et al (2008)				2 days			2 days	2 days
Griesbach et al (2011)				2 days			2 days	2 days
Hayes et el (2008)							Not specified	Not specified
Heyman et al (2015)				2 days			2 days	2 days
Holdsworth et al (2001)					5 x half day workshops over 10 weeks		2.5 days	10 weeks
Holliday et al (2020)		45 mins x 2 simulated scenarios					1.5 hrs	1.5 hrs
Kerr, Martin and Fleming (2018)			3.5 hrs				3.5 hrs	3.5 hrs
Manning et al (2017)						Reusable Learning Objects	Not specified	Not specified
May (2001)					Notices displayed for 4 weeks		Not specified	4 weeks
McLean et al (2007)			Half day				Half day	Half day
Mellanby et al (2010)			3 hrs students	2 days academics			3 hrs students2 days academics	3 hrs students 2 days academics
Morgan et al (1996)		70 mins					1hr 10 mins	1 hr 10 mins
Morriss et al (1999)				4x2 hr weekly sessions (over 4 weeks)			8 hrs	4 weeks
Morriss et al (2005)			4-8 hrs				4-8 hrs	6 months
Naylor et al (2009)			6 x 50 min over 6 weeks				5 hrs	6 weeks
Owens and Charles (2017)						Educational leaflet	Not specified	Not specified
Patterson et al (2007)					72 hrs in total 12 days over 15 weeks		78 hrs (12 days)	15 weeks

Paper	< 1 hr	1-2 hr	Half to 1 day	1-2 days	>more than 2 days	Not specified	Total hrs	Overall timeframe
Robertson et al (2013)				2 days			2 days	2 days
Robinson, Baybrook, and Robertson (2013)						Public awareness campaign	Not specified	Not specified
Robinson, Baybrook, and Robertson (2014)						Public awareness campaign	Not specified	Not specified
Ross-Davie, Elliot, and Green (2007)			1 day				1 day	1 day
Stephens et al (2011)						Theatre performance followed by workshop	Not specified	Not specified
Total Included Papers N=35 (from 34 studies)	1	3	11	10	5	5		

Appendix 6: Table Detailing Content of Training

Category	Content of training
Explanations, facts, and introductory training information	The following introductory information was covered: • An explanation to help understand self-harm [26, 34, 40] and explained suicide [39, 40] • Clinical facts about suicide [36] • Facts on self-harming [29], alongside an exploration of self-injury and it's possible functions from a woman's perspective [41]. One study discussed the specific range, forms and functions of the behaviour, and the effects of, and responses to, the self-harm behaviour [40]. • One paper focused on awareness [46] and fears of suicide [39]. One paper discussed that at the beginning of the training they prepared the attendees by setting the tone, norms, and expectations of the learning experience [49].
Statistics	One paper provided statistics on crisis numbers [42, 43], one provided basic statistics on suicide [30, 36]
Attitudes	Within this category it highlights the training that covered attitudes towards self-harm and suicide. During the suicide prevention training, the individuals' attitudes to suicide [49], misconceptions and cognitive biases towards suicide [39] were addressed. Training also covered what individuals believed other's attitudes were towards suicide [49]. Training aiming to challenge those negative attitudes [36] and the stigma around suicide [42, 43], which could aid in the person being more willing, ready and able to recognise and intervene for people at risk of suicide [48].
Awareness and risk factors of self-harm and suicide	The following risk factors were covered which can influence someone's behaviour: • Risk factors generally [39]. • Brain biology [41] • Mental illness and the implications for pregnancy and parenting [44] • Symptoms of simple and complex Post Traumatic Stress Disorders and practical ways to help [42, 43] • Common problems for students [22] • Causes of self-harm and suicide [40] • Epidemiology of deliberate self-harm [18] • Factors which may inhibit self-harm (family relationships, isolation, self-esteem) [20] • Reasons people have for self-harming [29]. • Possibility of suicide in family and friends [39]. • Various mental health conditions were discussed including stress, depression, suicide/self-harm, eating disorders [38] • Bullying and intellectual disabilities [38]. • General mental health promotion and perinatal mental health [44].
Risk assessment and screening process for self-harm and suicide	Within the training for professionals, it covered assessment and screening of self-harm and suicide risk. The following paper covered assessment processes generally [25, 48], of patients and identification of those at risk [18] , of deliberate self-harm [24] and suicide risk [16, 17, 24, 26, 31, 37]. The following papers discussed assessing risk in the hospital setting [24], in the community [24] and in assessing risk and managing safety self-harm in children and young people [34] Screening:

	• Screening for mental health problems antenatally [44] • Assessing mental state and psychosocial problems [17] • Ability to recognise people who may be having thoughts of suicide [48]. • Warning signs [39]. Clinical aspects and documentation: • Risk assessment instruments and documentation [31] • Assessment methods and processes [40] • Discussion of good clinical practice in the assessment and management of suicidal persons [36] • Recognise persons who might be having thoughts of suicide [46] • Skills to be better able to recognise someone at risk [47] • Essential need for documentation and communication of presenting risks and the reasons underpinning these risks are highlighted [19]
Risk management and prevention of self-harm and suicide	Training covered various methods for the individual to manage and prevent self-harm and suicide through: • Coping mechanisms [20] and self-help methods [22] • Interventions and management of care [40] • Practice using steps of suicide alertness and to provide information for people with suicidal thoughts so that they can access further help [33] • Exploring the possibilities for prevention [40] • Risk aversive approaches to reducing harm [41] • Practical preventative information, unhealthy behaviours, looking after your mate [22] The following covered management of self-harm and suicide risk for professionals: • Immediate management of suicide risk and safety planning [26]. • School and health staff managing self-harm [20] • Encouraging people to seek help early [42, 43] • Responding to repeated deliberate self-harm [31] • Self-harm and care pathways for children and young people admitted to hospital [34] • Presents a model for effective suicide intervention [49]. • Prevention of further crises [17] • Participants gain the knowledge and skills to recognise risk and develop a “safeplan” to reduce the risk of suicide [49].
Treatments	One paper discussed specific treatment including; dialectical behaviour therapy, cognitive analytical therapy, cognitive behavioural therapy, eye movement desensitisation therapy and distress signature work [41]. While another discussed the Manual Assisted Cognitive Therapy (MACT) pathway, and used the booklet throughout the training [23].
Crisis management	Specific training was provided on crisis management [26, 48], and crisis prevention management [16, 26, 37, 48]. Specific training was provided on crisis management [26, 48], and crisis prevention management [16, 26, 37, 48]. Specific training was provided on crisis management [26, 48], and crisis prevention management [16, 26, 37, 48]. Specific training was provided on crisis management [26, 48], and crisis prevention management [16, 26, 37, 48].

Skill development	A range of practical skills were discussed throughout the training to develop or enhance: • develop decision-making on referrals and care planning [44] • problem solving [16, 37] • effective communication with Children and Young People [34] • clinical management of suicide risk [17] • conducting a clinical interview with techniques for asking difficult questions [19] • how to formulate and produce risk management plans [19] • Motivational interviewing [21] • Responding to letters concerning welfare benefits [21] • How to engage with people who may be having suicidal thoughts [49], and specifically colleagues [47].
Professional practise issues	One paper discussed within the training issues within professional practice in relation to self-harm and suicide prevention [40], another paper specifically discussed the difficulties and management of assessments [18].
Simulation	• One study showed two scenarios (one where a young person is admitted to health services following self-harm and a second situation in which they have taken an overdose of paracetamol) [45]. • One study presents a model for effective suicide intervention – participants develop their skills through observation and supervised simulation experiences in large and small groups [49]. • One study had students in groups of six, were asked to take on a specific role relevant to their field of nursing during simulation. Remaining students observed the scenario via video link [32].
Sharing experiences	• One paper discussed personal and professional experiences of suicide [30], additionally as well as personal experiences from attendees celebrity stories were shared of self-harming in one training programme [29].
Co-production	One training programme highlighted the value of co-production with the service-user and family/carer in the use of a specific risk management approach[19]
Sign posting to local services	A commonality across training was signposting to services and giving of resources, including: • provided advice on asking about suicidal thoughts[39] • organisation of clinical services[36] • community resources trained in suicide intervention [46] • service provided by the parasuicide team [18] • information about resources in the local community [49]. • local services and support [22] • agencies and community resources [21]
Little information provided on training	Three papers provided little to no information on the content of the training [35, 47, 50] For instance: • "Intervention group received information packs and notice board displays" [35] • "Usual STORM topics with the addition of suicide and suicide risk in custody" [50] • "Academics received an ASIST workshop. The content was not specified" [47]
Does not fit categories above	• Assessment of an actor role-playing scenario [24] • Practice feedback reflection [31] • the political and research context [44]

Appendix 7: Table Detailing Outcomes of Training

	Outcome measures							Outcomes		
Study	Skills/ Practice	Attitudes	Confidence	Satisfaction	Self-Efficacy	Knowledge / Awareness	Clinical Outcomes*	Suicide rate	Longer term assessment	Showed improvements/ effectiveness**
Appleby et al (2000)	✓	✓	✓	✓					Y 1-2 months	Y
Barnes et al (2018)							✓		Y 3 months	Y
Burford & Hardy (2019)				✓		✓			N	Y
Crawford, Turnbul & Wessely (1998)	✓	✓				✓			Y 11 weeks	Y
Davideson et al (2004)							✓		Y 6 and 12 months	Y
Felton et al (2013)	✓			✓					N	Y
Fenwick (2009)	✓		✓	✓					Y 2 months	Y
Gask et al (2006)	✓	✓	✓	✓					Y 4 months	Y
Gask et al (2017)	✓	✓	✓	✓					Y 3 months	Y
Gask Coupe & Green (2019)	✓								Y varies	Y
Gask, Lever- Green & Hays (2008)		✓	✓	✓		✓			Y 6 months	Y
Gibson, Carson & Houghton (2019)		✓							N	Y
Gray, Tiller & Snowdon (2019)	✓		✓						N/A	Y
Griesbach et al (2008)	✓	✓	✓	✓		✓			Y varies	Y
Griesbach et al (2011)	✓		✓	✓					Y varies	Y
Hayes et al (2008)		✓	✓	✓		✓			Y 6-8 months	Y
Heyman, Webster and Tee (2015)	✓			✓					Y within 1 month	Y
Holdsworth Belshaw, and Murray (2001)	✓		✓			✓			N	Y
Holliday et al (2020)		✓	✓	✓	✓				N	Y
Kerr, Martin & Fleming (2018)					✓				N	Y
Manning et al (2017)	✓	✓	✓	✓	✓	✓			N	Y
May (2001)		✓							N	N
McLean et al (2007)	✓		✓	✓		✓			Y 6 month	Y
Mellanby et al (2010)	✓			✓					Y 3 weeks	Y
Morgan et al (1996)		✓							N	Y
Morris et al (1999)	✓		✓						Y 1 month	Y
Morris et al (2005)								✓	Y varies	N
Naylor et al (2009)						✓			Y 6 months	Y
Owens & Charles (2017)				✓					Y 3 and 6 months	Y
Patterson Whittington, & Bogg (2007)		✓							Y 18-24 months	Y
Robertson et al (2013)	✓		✓	✓					N	Y
Robinson, Baybrook & Robertson (2013/2014)		✓				✓			Y varies	Y
Ross-Davie Elliott, and Green (2007)	✓	✓	✓	✓		✓			Y 1 month	Y
Stephens et al (2011)			✓			✓			N	Y
Total	**18**	**15**	**17**	**18**	**3**	12	2	1	**22**	**32**

*Clinical outcomes refer to patient outcomes of the training received. This includes measures of depression, anxiety, social functioning, quality of life and patient health.
** Effectiveness column: a 'Y' response indicates some effectiveness was demonstrated in at least one of the outcome measures

Appendix 8: Definitions and Competencies for Training on Self-harm and Suicide Prevention for Children and Young People

	Definition
Attitudes, values and style of interaction when working with children and young people who have self-harmed and/or are suicidal	Professionals should be able to: • Demonstrate an empathic understanding and appreciation of the difficulties that a child or young person is experiencing and recognise that these feelings of distress are very real to them • Locate the distress within the broader context of a child's or young person's life • Demonstrate to a child or young person that their perspective and concerns are respected and being taken seriously, and • Help a child or young person begin to feel in control of their care by establishing and maintaining a collaborative relationship with them, their family, carers or significant others, involving them in decisions about their care.
Knowledge specific to work with children and young people	**'Basic knowledge of mental health presentation in children and young people'** indicates the key knowledge about mental health that all professionals should have and draws attention to the fact that mental health stigma can prevent children and young people from seeking help. **'Knowledge of development and developmental transitions in children and young people, and relevance to self-harm and suicide'** sets out areas of development common to all children and young people, along with the transitions during adolescence that can be challenging for some and that may exacerbate distress, self-harm and suicidal ideation.
Knowledge of issues related to self-harm and suicide	'**Knowledge of self-harm and suicide'**, which sets out the knowledge that a professional would be expected to have to aid them in their practice. This includes knowledge on prevalence of self-harm and suicide, and commonly used terminology. These areas also explore the associations between self-harm and suicide, look at the connections between mental health, physical health and social and psychological factors, and describe the impact of self-harm and suicide on others. '**Understanding self-harm and suicidal ideation and behaviour'**, describes the factors thought to contribute to the development and maintenance of self-harm and suicidal thoughts and feelings in children and young people. It also describes the factors that might contribute to someone going from thinking about suicide to actively seeking to end their life. **'Knowledge of the impact of social inequalities on self-harm and suicide'** identifies the types of vulnerability linked to social disadvantage, recognising the fact that self-harm and suicide can be influenced by a person's social and economic circumstances.
Professional competences for all workers	'**Knowledge of organisational policies and procedures relevant to self-harm and suicide'** as they relate to the care and support of children and young people who self-harm and/or are suicidal. The '**Ability to operate within and across organisations'** is an important skill as it requires knowledge of the roles and responsibilities of the professional, their immediate colleagues and other professionals they might work with. It is also important for individuals to know their organisation's policies and procedures. For support to be delivered seamlessly across multiple services in the community, individuals also need to understand local pathways of care and which criteria apply to each service. This knowledge will help to ensure that the child or young person can be supported by the most appropriate services and that the experience of care will be a more positive and reliable one, both for the young person and for their family, carers and significant others. '**Knowledge of, and ability to operate within, professional and ethical guidelines'** draw attention to the application of these principles in areas such as autonomy, consent, confidentiality and the minimisation of harm. All who work with children and young people will also need to have an '**Ability to recognise and respond to concerns about child protection'.** This involves knowing about relevant legislation and the principles that inform child protection procedures, how to recognise the signs of neglect and abuse, and the actions that need to be taken when there is a concern about harm. Safeguarding refers to the protection of individuals who are at risk of harm from various forms of abuse or neglect. In order to keep people safe from harm, professionals should have an **'Ability to recognise and respond to concerns about safeguarding'**. These harms can be experienced by people of any age, therefore the competences related to safeguarding are broader than those for child protection and might be critical to have when working with the whole family.
Professional competences for healthcare workers	The first of these is '**Knowledge of legal frameworks relating to working with children and young people'**. This is key to working in this area because knowledge of mental health law and issues such as consent and capacity, and how they relate to working with children and young people, is required in daily practice It is particularly important for professionals to be familiar with the **legislation relevant to their own discipline** or that may apply in different settings in which interventions might be provided. Other critical areas of legislative knowledge **include data protection, equality, parental rights and responsibilities, shared decision-making, child protection and human rights**. '**Knowledge of, and ability to work with, issues of confidentiality and consent'**, a potentially complex area which often requires careful judgement about instances in which it is in the best interests of the child or young person to maintain or to breach confidentiality, and to whom information is appropriately passed or withheld from. Related to this is 'Knowledge of, and ability to assess, capacity', a skill that is critically relevant to this area of working. When assessing capacity, health and social care workers should be able **to make adjustments to their communication style** so that they can make themselves understood; this will reduce the chance of workers making an incorrect capacity judgement. The '**Ability to work with difference**' includes the ability to take account of the ways in which all people differ, along with how a child's or young person's defining characteristics, or the characteristics of their family, can influence the way they experience life, the way that they present to services and which interventions might be offered to them.

	All health and social care workers should be able to support and care for children and young people from all backgrounds, including those with protected characteristics (as set out in the Equality Act 201025), or additional characteristics that might be relevant, such as the family's socioeconomic status. Some children and young people may differ significantly from their family or carers in terms of characteristics or cultural upbringing. Children and young people who are societally disadvantaged in any way may experience a double burden, with discrimination and stigma not only making them more vulnerable, but also making it harder for them to access healthcare. Wherever professionals do identify inequalities to access and care, they should begin to take necessary steps to overcome these. Supervision and support for practitioners should be the norm, so the final competences in this part are those relating to the '**Ability to make use of supervision'**. This references the skills that professionals need to have in order to get the best out of supervision, and to subsequently gain support and improve the quality of care they deliver through reflection and learning.
Professional competences for organisations	**'Responding to, and learning from, incidents at an organisational level'**, which involves arranging an independent investigation into the death of the child or young person in compliance with institutional and statutory requirements. This investigation should be completed in a way that does not seek to blame, but is open, thorough and conducted in a manner that is sensitive to the needs of the family, carers and others who have been bereaved by the suicide, as well as staff who were involved in supporting the child or young person who died. The need for '**Providing support for staff after a death by suicide'**, a specific form of postvention that recognises the potential impact of a suicide on those who worked with the child or young person who has died.
Communication skills	Professionals should be able to draw on even the most basic communication skills so that children and young people feel that they are: • being respected, heard and understood • connected to others by sharing their experience with those involved in their support and care • able to express themselves in their own words • able to reflect on what might help them in this situation, with the help of their family, carers and those involved in their care. **'Ability to communicate with children and young people of differing ages and developmental levels'** describes the approaches that professionals should consider when communicating with children and young people of varying ages and how to tailor these to facilitate clear and open discussion. In addition, developmental levels might differ, even between children and young people of the same age groups. It is important for professionals to consider the developmental level of the child or young person, irrespective of their age, and to use an approach to communication that is appropriate to their level of understanding. **; Ability to communicate with children and young people with neurodevelopmental conditions'** identify three conditions that strongly influence the ways in which children and young people interact, namely, learning disabilities, autism spectrum disorders and attention deficit hyperactivity disorder (ADHD). **;Signposting/enabling'** is outlined, setting out the competences needed to direct children and young people to resources and sources of support. There is the need not only to identify these sources of support, but also to facilitate their uptake by the child or young person, as well as their family and carers if they require support.
Education and training, postvention and liaising with others	'**Self-harm and suicide awareness and prevention training'** as well as the procedures for delivering this in practice. **'postvention'** is a term used to refer to interventions that aim to support people who have been bereaved by suicide. The competences contained within 'Support for people bereaved by suicide' address the specific characteristics of the process of grieving after a death of a child or young person by suicide and how these should be kept in mind when supporting bereaved individuals. Another focus of postvention is the organisational response to a death by suicide – for example, in a school, university or workplace, where a number of people may be affected by the death of the child or young person. **'Support for people within an organisation after a suicide'** describes the factors that organisations should consider when supporting those who have been affected by a child's or young person's death, including their peers, teachers and others who might have been affected, not just those who were close to the child or young person. **'Liaison with others'**, the processes involved in '**Managing transitions in care within and across services**' are outlined. This is a critical area of activity aimed at maintaining continuity of care and ensuring that a vulnerable child or young person is not forgotten about, or is not engaged with, which has been noted by reports from inquiries. This includes the joining up of processes between statutory commissioned services and voluntary and community sector organisations to ensure that the support provided is seamless.
Therapeutic competences	**'Generic therapeutic competences'** are a set of underpinning areas of knowledge and skills common to the delivery of all face-to-face interventions for children and young people. Any professional seeking to deliver interventions for children and young people who have self-harmed and/or are suicidal should have **'Specific knowledge of mental health problems in children and young people'** from their prior training and experience. This forms the core knowledge that enables professionals to engage in work which specifically focuses on supporting a child or young person with mental health problems and related distress. The decision to begin any intervention has to reflect a collaborative choice between the professional, the child or young person, and their family or carers, making the '**Ability to collaboratively engage children and young people with the treatment options open to them'** a key first step to any treatment. This ensures that the child or young person and their family or carers have agreed with the choice of the intervention and are aware of the other options available to them. Developing the alliance depends on an ability to recognise the ways in which the child or young person, their family, carers or significant others understand themselves and the world around them, as well as their own goals, strengths and needs. This makes the **'Ability to foster and maintain a good therapeutic alliance**' a core area of skill. The '**Ability to understand and respond to the emotional content of sessions'** is central to all interactions with children and young people. The professional should reflect on the meaning of a child's or young person's expression of emotion and behaviours, and during interventions elicit emotions that facilitate change. To understand these emotions fully, the professional should also speak to the family or carers as they may be able to provide insight into any meaning behind occurrences or changes in behaviour.

	The end of treatment and care can and service transitions can be a difficult time for a child or young person, as well as their family or carers, health and social care team and the professional, making the **'Ability to manage endings and service transitions'** an important area of competence. Disengaging from treatment is often as significant as engaging with it, therefore this process is an integral part of the therapeutic relationship. The professional should manage both planned or unplanned endings (where the child or young person ends contact with services earlier than planned). Where there is a transition in care, professionals should know that this can be potentially destabilising and could represent times of greater risk of self-harm and/or suicide. There is considerable value in a child's or young person's own views on their problems and any changes they have noticed. This is also true for the views of their family or carers. It is good practice for professionals to have **the 'Ability to make use of measures (including monitoring of outcomes)'**, so that these changes can be recorded systematically. Measures usually capture phenomena that are common to individuals with a particular problem, whereas free-text records are a way of helping the child or young person note down their concerns in their own way. These can be used in conjunction with assessment, interventions and therapies because they draw on current information.
Assessment and formulation	**'Ability to undertake a collaborative assessment of risk, needs and strengths'**. This is a key area within the framework and it is important to recognise the limitations of assessment. The importance of undertaking a collaborative person-centred assessment that considers risk in the context of needs. The '**Ability to assess children's and young people's wider circumstances'** and the '**Ability to assess a children's and young people's functioning across contexts'** ensures that the child or young person is understood holistically, making it more likely that the factors that have led to self-harm can be determined and understood. The '**Ability to develop a formulation'** is a key step in the assessment process, as this is the point at which information is gathered together into a coherent account that helps to understand the determinants of self-harm and/or suicidal ideation for the child or young person and the factors that maintain it. Competences on how to do this are written within **'Ability to feedback the results of the assessment and formulation and agree an intervention plan'**. Commonly, the intervention plan will involve other professionals and/or other services, and so the '**Ability to coordinate casework across different agencies and/or individuals'** may well be a critical part of the planning process. Although the **'Ability to collaboratively engage children and young people with intervention plans'** is the final part of the assessment process, this is not an afterthought. An intervention plan should not be imposed on a child or young person. 'Specialist assessments' - The first is the 1) '**Ability to conduct a Mental State Examination'**, which is usually undertaken by individuals with specialist training. second specialist assessment is the 2) **'Observation of children and young people at risk of self-harm or suicide'**, an activity that can be of importance in maintaining the safety of children and young people known to be at high risk of self-harm and/or suicide. Appropriate training and support needs to be available to professionals undertaking this task, which should be seen as part of the clinical intervention rather than a stand-alone, 'tick-box' exercise. The competences required for observation might also be applicable to other health and social care professionals with responsibility for observation, such as emergency department staff, or paediatric clinicians
Specific interventions by mental health professionals	The competences on interventions contain detailed accounts of two modality-specific approaches for working with young people who have self-harmed or have suicidal ideation: dialectical behaviour therapy and mentalisation-based therapy.
Structured care and intervention	Five components are included here: '**Crisis intervention', 'Clinical management', 'Safety planning', 'Assessment and initial management of self-harm', and 'Interventions for self-harm'**. Medication also has a part to play in the treatment regimen of people who have self-harmed and/or are suicidal, most commonly for coexisting mental health problems. The competences contained within **'Knowledge of pharmacological interventions'** highlight the importance of understanding the interventions that are recommended for children and young people who have self-harmed and/or are suicidal and the knowledge needed to prescribe medication for coexisting mental health problems in this age group.
Meta-competences	**Overarching competences that guide practice and the implementation of any intervention**. Examples include using judgement and adapting interventions according to feedback from people who use mental health services.

Appendix 9: Definitions and Competencies Training on Self-harm and Suicide Prevention for Adults and Older People

	Definition
Attitudes, values and style of interaction when working with people who have self-harmed and/or are suicidal	Professionals should be able to: • Demonstrate an empathic understanding and appreciation of the difficulties that a person is experiencing and recognise that these feelings of distress are very real to them • Locate the distress within the broader context of a person's life • Demonstrate to a person that their perspective and concerns are respected and being taken seriously, and • Help a person begin to feel in control of their care by establishing and maintaining a collaborative relationship with them, their family, carers or significant others, and involving them in decisions about their care.
Basic knowledge of issues related to self-harm and suicide	**'Basic knowledge of mental health presentations'**. This outlines key knowledge about mental health that all professionals should have and draws attention to the fact that mental health stigma can prevent people from seeking help. **'Knowledge of self-harm and suicide'** set out the knowledge that a professional would be expected to have to aid them in their practice. This includes knowledge on prevalence of self-harm and suicide, and commonly used terminology. These competences also explore the associations between self-harm and suicide, look at the connections between mental health, physical health and social and psychological factors, and describe the impact of self-harm and suicide on others. **'Understanding self-harm and suicidal ideation and behaviour'** describes the factors thought to contribute to the development and maintenance of self-harm, suicidal thoughts and feelings. It also describes the factors that might contribute to a person going from thinking about suicide to actively seeking to end their life. **'Knowledge of the impact of social inequalities on self-harm and suicide'** identifies the types of vulnerability linked to social disadvantage, recognising the fact that self-harm and suicide can be influenced by a person's social and economic circumstances.
Professional competences for all workers	**'Knowledge of organisational policies and procedures relevant to self-harm and suicide'** as they relate to the care and support of adults and older adults who self-harm and/or are suicidal. The '**Ability to operate within and across organisations**' is an important skill to hold as it requires knowledge of the roles and responsibilities of the professional, their immediate colleagues and other professionals they might work with. It is also important for individuals to know their own organisational policies and procedures. All professions and regulatory bodies set out ethical standards that professionals are expected to know and to apply in their practice. The competences within **'Knowledge of, and ability to operate within, professional and ethical guidelines'** draw attention to the application of these principles in areas such as autonomy, consent, confidentiality and the minimisation of harm. Safeguarding refers to the protection of individuals who are at risk of harm from various forms of abuse or neglect. In order to keep people safe from harm, professionals should have an **'Ability to recognise and respond to concerns about safeguarding'**. These harms can be experienced by people of any age, so these competences might be key when working with all of the people in the individual's life.
Professional competences for healthcare workers	The first of these is '**Knowledge of legal frameworks relating to working with adults and older adults'**. This is key to working in this area, as knowledge of mental health law and issues such as consent and capacity is required in daily practice. It is particularly important for professionals to be familiar with the legislation that is relevant to their own discipline, or that may apply in different settings in which interventions might be provided. Other critical areas of **legislative knowledge include data protection, equality, parental rights and responsibilities, shared decision-making, child protection and human rights**. Linked to this is '**Knowledge of, and ability to work with, issues of confidentiality and consent'**, a potentially complex area which often requires careful judgement about instances in which it is in the person's best interests to maintain or to breach confidentiality, and to whom information is appropriately passed or withheld from. **'Knowledge of, and ability to assess, capacity'**, a skill that is critically relevant to this area of working. When assessing capacity, health and social care workers should be able to make adjustments to their communication style so that they can make themselves understood; this will reduce the chance of workers making an incorrect capacity judgement. Respecting diversity, promoting equality of opportunity for people receiving care, and challenging inequalities and discrimination, are all important parts of practice. The '**Ability to work with difference'** includes the ability to take account of the ways in which people differ, along with how a person's defining characteristics can influence the way they experience life, the way that they present to services and which interventions might be offered to them. All health and social care workers should be able to support and care for people from all backgrounds, including those with protected characteristics (as set out in the Equality Act 201025), or additional characteristics that might be relevant, such as socioeconomic status. People who are societally disadvantaged in any way may experience a double burden, with discrimination and stigma not only making them more vulnerable, but also making it harder for them to access healthcare. Wherever professionals do identify inequalities to access and care, they should begin to take necessary steps to overcome these. Supervision and support for professionals should be the norm, so the final competences in this part of the framework are those relating to the '**Ability to make use of supervision'**- This references the skills that professionals need to have in order to get the best out of supervision, and to subsequently gain support and improve the quality of care they deliver through reflection and learning.
Professional competences for organisations	**'Responding to, and learning from, incidents at an organisational level'**, which involves arranging an independent investigation into the death of the person in compliance with institutional and statutory requirements. This investigation should be completed in a way that does not seek to blame, but is open and thorough, and conducted in a manner that is sensitive to the needs of the family, carers and others who have been bereaved by the suicide, as well as staff who were involved in supporting the person who died. The need for **'Providing support for staff after a death by suicide',** which is a specific form of postvention that recognises the potential impact of a suicide on those who worked with the person who has died.

Communication skills	When communicating with a person in such circumstances, professionals should be able to draw on basic communication skills so that people feel that they are: • being respected, heard and understood • connected to others by sharing their experience with those involved in their support and care • able to express themselves in their own words • able to reflect on what might help them in this situation, with the help of those involved in their care. The competences within '**Ability to communicate with people with neurodevelopmental conditions'** identify three conditions that strongly influence the ways in which people interact, namely; learning disabilities, autism spectrum disorders, attention deficit hyperactivity disorder (ADHD). these competences can also be used when communicating with people with sensory deficits or other speech and language problems. As well as providing specific guidance on communication issues, this part of the framework is also intended to illustrate how workers may need to adapt their approach while considering the reasons for any challenges to communication with the person. The role of **'Signposting/enabling'** - direct people to resources and sources of support. There is the need not only to identify these sources of support, but also to facilitate their uptake by the person, as well as their family and carers if they require support.
Education and training, postvention and liaising with others	the key content that would be expected in '**Self-harm and suicide awareness and prevention training'** as well as the procedures for delivering this in practice. '**postvention'**- a term used to refer to interventions that aim to support people who have been bereaved by suicide. The competences contained within 'Support for people bereaved by suicide' address the specific characteristics of the process of grieving after a person's death by suicide and how these should be kept in mind when supporting bereaved individuals. Another focus of postvention is the organisational response to a death by suicide – for example, in a school, university or workplace, where a number of individuals may be affected by a person's death. '**Support for people within an organisation after a suicide'** describes the factors that organisations should consider to support those who have been affected by the person's death, including their peers, colleagues, and others within the organisation, not just those who were close to the person. These competences highlight the importance of supporting members of staff to resume their duties if they have been affected by the death of a person within the organisation, or someone they have been supporting. Finally, under the heading '**Liaison with others'**, the processes involved in '**Managing transitions in care within and across services'** are outlined. This is a critical area of activity aimed at maintaining continuity of care and ensuring that vulnerable people are not forgotten about, or are not engaged with, which has been noted by reports from inquiries. This includes the joining up of processes between statutory commissioned services and voluntary and community sector organisations to ensure that the support provided is seamless
Therapeutic competences	Generic therapeutic competences' are a set of underpinning areas of knowledge and skills common to the delivery of all face-to-face interventions for adults and older adults. Any professional seeking to deliver interventions for adults and older adults who have selfharmed and/or are suicidal should have 'Specific knowledge of mental health problems' from their prior training and experience. This forms the core knowledge that enables professionals to engage in work which specifically focuses on self-harm and suicide. The decision to begin any intervention has to reflect a collaborative choice between the professional and the person, making the '**Ability to collaboratively engage people with the treatment options open to them**' a key first step to any treatment. This ensures that people have agreed with the choice of the intervention and are aware of the other options available to them. The therapeutic alliance is the capacity to build and maintain a therapeutic relationship in which the professional develops a **'bond'** with the person and reaches agreement on the goals and activities related to the assessment and intervention. Developing the alliance depends on an ability to recognise the ways in which the person, their family, carers or significant others understand themselves and the world around them, as well as their own goals, strengths and needs. This makes the **'Ability to foster and maintain a good therapeutic alliance'** a core area of skill. The **'Ability to understand and respond to the emotional content of sessions'** is central to all interactions with a person. The professional should reflect on the meaning of the person's expression of emotion and behaviours, and during interventions should elicit emotions that facilitate change. To understand these emotions fully, the professional should also speak to the person's family, carers or significant others, if the person agrees. The people involved in the person's life may be able to provide insight into any meaning behind changes in behaviour. Throughout both assessment and intervention, the professional should hold in mind the level of emotion that is likely to be helpful, for example containing strong expressions of anger, or helping people raise highly sensitive or painful experiences without being overwhelmed by the feelings these might generate. The end of treatment and care can be a difficult time for people, as well as their family or carers, health and social care team and the professional, making the **'Ability to manage endings'** an important area of competence. Disengaging from treatment is often as significant as engaging with it, therefore this process is an integral part of the therapeutic relationship. The professional should manage both planned and unplanned endings (where the person ends contact with services earlier than planned). Where there is a transition in care, professionals should know that this can be potentially destabilising and could represent times of greater risk of self-harm and/or suicide. Professionals should work to make the transition process as smooth as possible by supporting the person to prepare for a transfer of care. There is considerable value in a person's own views on their problems and any changes they have noticed. It is good practice for professionals to have the '**Ability to make use of measures (including monitoring of outcomes)**', so that these changes can be recorded systematically. Measures usually capture phenomena that are common to people with a particular problem, whereas free-text records are a way of helping the person to note down their own concerns in their own way. These can be used in conjunction with assessment, interventions and therapies because they draw on current information.

Assessment and formulation	'**Ability to undertake a collaborative assessment of risk, needs and strengths'**, is a key area within the framework and it is important to recognise the limitations of assessment. Through research and practice, a large number of factors have been identified as associated with risk, but these have limited predictive value, meaning that, at best, assessments can only apply to the short-term outlook and should not be used to plan for the longer term. This is not to say that risk assessments should not be undertaken, but to emphasise that they cannot be solely relied on or used as a way of neglecting ongoing observations and assessments that might identify shifts in the person's mental state and intentions. If risk assessments are undertaken, they should be completed as part of safety planning and not in isolation. A second theme in this part of the framework is the importance of undertaking a collaborative person-centred assessment that considers risk in the context of needs. The assessment of people presenting with self-harm should include consideration of their history and context. The **'Ability to assess a person's wider circumstances'** and the '**Ability to assess a person's functioning across contexts'** ensures that the person is seen holistically, making it more likely that the factors that have led to self-harm can be determined and understood. The '**Ability to develop a formulation'** is a key step in the assessment process, as this is the point at which information is gathered together into a coherent account that helps to understand the determinants of self-harm and/or suicidal ideation for the person and the factors that maintain it. Arriving at a formulation is an exercise that should be shared with the person to test its accuracy and to confirm the person's sense of its relevance. Competences on how to do this are written within '**Ability to feedback the results of the assessment and formulation and agree an intervention plan'**. Commonly, the intervention plan will involve other professionals and/or other services, and so the '**Ability to coordinate casework across different agencies and/or individuals'** may well be a critical part of the planning process. Although the '**Ability to collaboratively engage a person with the intervention plan'** is the final part of the assessment process, this is in no way an afterthought. An intervention plan should not be imposed on a person. Rather, professionals should engage the person (and their family or carers) throughout the decision-making process to give them the ability to explore treatment options and understand each fully. Together with the professionals' guidance, they can develop an intervention plan that all parties agree with and understand. If the person feels a lack of control over decisions relating to care, there is a risk that they will disengage, so this is an important part of ongoing support with an adult or older adult. Within 'Assessment and formulation' there are **two sets of competences for 'Specialist assessments'**. The first is the '**Ability to conduct a Mental State Examination'**, which is usually undertaken by individuals with specialist training. For the effective delivery of mental state examination competences, it is vital to integrate them with the core knowledge and skills set out on the left-hand side of the framework, in the '**Generic therapeutic competences'** and the 'Assessment and formulation'. The second specialist assessment is the '**Observation of people at risk of self-harm and suicide'**, an activity that can be of importance in maintaining the safety of people known to be at high risk of self-harm and/or suicide. Appropriate training and support need to be available to professionals undertaking this task, which **should be seen as part of the clinical intervention rather than a stand-alone, 'tick-box' exercise**. The competences required for observation might also be applicable to other health care professionals with responsibility for observation, such as emergency department staff or acute general hospital staff.
Specific interventions by mental health professionals	The gold-standard method for assessing the effectiveness of interventions is randomised controlled trials (RCTs). Recently, two Cochrane Collaboration systematic reviews synthesised the worldwide RCT evidence on the effectiveness of interventions for self-harm in adults. These robust systematic reviews suggest that there is now strong evidence that psychological therapies such as problem solving, dialectical behaviour therapy (DBT) and cognitive behavioural therapy (CBT) can effectively prevent the repetition of selfharm in adults over the age of 18. These **'talking therapies' have also been shown to reduce the psychological distress** related to behaviours associated with self-harm and suicide. There is, however, little evidence to support the use of psychopharmacological treatments in reducing the repetition of behaviours related to self-harm. **Because of this evidence, the competences on interventions contain detailed accounts of two modality-specific approaches for working with adults and older adults: DBT and CBT.**
Structured care and intervention	Five components are included here: '**Crisis intervention', 'Clinical management', 'Safety planning', 'Assessment and initial management of self-harm', and 'Interventions for self-harm'**. further approach is the '**Collaborative Assessment and Management of Suicidality (CAMS**)', a package of care that overlaps with the previous areas of activity and for which there is some research evidence. Medication also has a part to play in the treatment regimen of people who have self-harmed and/or are suicidal, most commonly for coexisting mental health problems. The competences contained within **'Knowledge of pharmacological interventions'** highlight the importance of understanding the interventions that are recommended for children and young people who have self-harmed and/or are suicidal and the knowledge needed to prescribe medication for coexisting mental health problems in this age group.
Meta-competences	**Meta-competences refer to the use of judgement when carrying out an activity or intervention.** These are relevant to all aspects of practice, and professionals often need to make decisions about whether, when or how to carry out an activity. Adapting and updating practice in a way that is tailored to the person and consistent with appropriate principles and evidence is an important marker of competence.

Appendix 10: Definitions and Competencies Training on Self-Harm and Suicide Prevention for Community and Public Audiences

	Definition and competencies
Attitudes, values and style of interaction when working with people who have self-harmed and/or are suicidal	Professionals should be able to: • Demonstrate an empathic understanding and appreciation of the difficulties that a person is experiencing and recognise that these feelings of distress are very real to them • Locate the distress within the broader context of a person's life • Demonstrate to a person that their perspective and concerns are respected and being taken seriously, and • Help a person begin to feel in control of their support by establishing and maintaining a collaborative relationship with them, their family, carers or significant others, including involving them in joint decision-making.
Basic knowledge of issues related to self-harm and suicide	The part of the framework titled '**Basic knowledge of issues related to self-harm and suicide'** contains four areas, starting with '**Basic knowledge of mental health presentations'**. This outlines key knowledge about mental health that all professionals should ideally have and draws attention to the fact that mental health stigma can prevent people from seeking help from health professionals. The competences within '**Knowledge of self-harm and suicide**' set out the knowledge that a professional who comes into contact with people who self-harm and/or are suicidal would be expected to have. This includes knowledge on prevalence of self-harm and suicide and commonly used terminology. These competences also explore the associations between self-harm and suicide, look at the connections between mental health, physical health and social and psychological factors, and describe the impact of self-harm and suicide on others. '**Knowledge of the impact of social inequalities on self-harm and suicide'** identifies the types of vulnerability linked to social disadvantage, recognising the fact that self-harm and suicide can be influenced by a person's social and economic circumstances. The final set of competences in this part of the framework, '**Understanding self-harm and suicidal ideation and behaviour'**, describes the factors thought to contribute to the emergence of self-harm as well as suicidal thoughts and feelings. It also describes the factors that might contribute to a person going from thinking about suicide to actively trying to end their life. Intended for professionals without specialist mental health knowledge, '**Knowledge of pharmacological interventions'** might be required because medication has a part to play in the treatment regimen of people who self-harm and/or are suicidal, most commonly for coexisting mental health problems. There is also a dedicated part of the framework related to knowledge about working with children and young people. '**Knowledge of development in children and young people and family development and transitions, and relevance to self-harm and suicide'** sets out areas of development common to all children and young people, along with the transitions arising during adolescence that can be challenging for some and that may exacerbate distress, self-harm and suicidal thoughts.
Professional competences for individual workers	**Knowledge of organisational policies and procedures relevant to self-harm and suicide'** as they relate to the support of people who have self-harmed and/or are suicidal. All workers should ideally have the '**Ability to recognise and respond to concerns about child protection'**. This involves knowing about relevant legislation and the principles that inform child protection procedures, how to recognise the signs of neglect and abuse, and the actions that need to be taken when there is a concern about harm. Linked to this are the competences regarding the '**Ability to recognise and respond to concerns about safeguarding'**. Safeguarding refers to the protection of individuals who are at risk of harm from various forms of abuse or neglect. These harms can be experienced by people of any age, therefore competences around safeguarding are broader than those for child protection. The '**Ability to operate within and across organisations'** is an important skill to hold as it requires knowledge of the roles and responsibilities of each professional or individual who might be involved in the support of the person, regardless of which organisation they belong to. It is also important for individuals to know their own organisational policies and procedures. For support to be delivered seamlessly across multiple services in the community, individuals also need to understand local pathways of support, care and treatment. This knowledge will help to ensure that the person can be supported by the most appropriate services and their experience of accessing them will be smooth and consistent. All professions and regulatory bodies set out ethical standards that professionals are expected to know and apply in their practice. The competences within '**Knowledge of, and ability to operate within, professional and ethical guidelines'** draw attention to the application of these principles in areas such as autonomy, consent, confidentiality and the minimisation of harm. '**Knowledge of legal frameworks relating to working with people who self-harm and/or are suicidal'** is key to working in this area, as knowledge of critical issues such as consent and capacity may be required. It is particularly important for professionals to be familiar with the legislation that is relevant to their discipline or that may apply in other related settings. Knowledge of mental health law would also be desirable for those who work closely to support people who have self-harmed and/or are suicidal. Other critical areas of legislative knowledge include data protection, equality, parental rights and responsibilities, shared decision-making, child protection and human rights. Linked to this is '**Knowledge of, and ability to work with, issues of confidentiality and consent'**, a potentially complex area which often requires careful judgement about instances in which it is in the person's best interests to maintain or to breach confidentiality, and to whom information is appropriately passed or withheld from. Related to this is '**Knowledge of, and ability to assess, capacity'**, a skill that might be relevant to some professionals who work in this area. Individual workers who need to assess capacity should be able to make adjustments to their communication style so that they can make themselves understood; this will reduce the chance of workers making an incorrect capacity judgement. It should also be remembered that capacity refers to a specific issue at a specific time and that any observations of capacity or lack of capacity can be temporary or can fluctuate. Detailed descriptions on assessing capacity can be found in the '**Professional competences'** part of the framework. Respecting diversity, promoting equality of opportunity for people receiving support and challenging inequalities and discrimination are all important parts of any practice, regardless of what that practice is or who is being supported. The '**Ability to work with difference'** includes the ability to take account of the ways in which people differ, along with how a person's defining characteristics can influence the way they experience life, the way they present to services and what kind of support they receive. All workers should be able to support people from all backgrounds and with protected characteristics (as set out in the Equality Act 201024), or additional characteristics that might be relevant, such as socioeconomic status. People who are societally disadvantaged in any way may experience additional challenges, with discrimination and stigma not only making them more vulnerable, but also making it harder for them to access support. Wherever professionals do identify inequalities in support, they should begin to take necessary steps to overcome these. Supervision and support for professionals should be the norm, so the final competences in this part of the framework are those relating to the '**Ability to make use of supervision'**. This references the skills that professionals need to employ in order to get the best out of supervision, and to subsequently gain support and improve the quality of support they deliver through reflection and learning.

Professional competences for organisations	Importance of **'Responding to, and learning from, incidents at an organisational level'**, which involves arranging an investigation into a death by suicide that is independent and in compliance with institutional and statutory requirements. This investigation should be completed in a way that does not seek to blame, but is open and thorough, and conducted in a manner that is sensitive to the needs of the family, carers and others who have been bereaved by the suicide, as well as staff who were involved in supporting the person who died. Closely linked to this last point is the need for '**Providing support for staff after a death by suicide'**, a specific form of '**postvention**' that recognises the potential impact of a suicide on those who worked with the person who died.
Training, postvention and liaising with others	The first describes the key content that would be expected in '**Self-harm and suicide awareness and prevention training'** as well as the procedures for delivering this in practice. The second area of activity is '**Postvention**', a term used to refer to interventions that aim to support people who have been bereaved by suicide. The competences contained within '**Support for people bereaved by suicide'** address the specific characteristics of the process of grieving after a person's death by suicide and how these should be kept in mind when supporting bereaved individuals. Another focus of postvention is the organisational response to a death by suicide – for example, in a school or a workplace, where a number of individuals may be affected by a person's death. '**Supporting people within an organisation after a suicide'** describes the factors that organisations should consider to support the entire workforce and individuals who have been affected, not just those who were close to the person who has died. These competences highlight the importance of supporting members of staff to resume their duties if they have been affected by the death of someone within the organisation, or who they have been supporting. Finally, under the heading of '**Liaison with others'**, the processes involved in '**Managing transitions in care within and across services'** are outlined. This is a critical area of activity aimed at maintaining continuity of care and ensuring that vulnerable people are not forgotten about, or are not engaged with, which has been noted by numerous reports from inquiries. This includes the joining up of processes between statutory commissioned services and voluntary and community sector organisations to ensure that the support provided is seamless
Generic communication skills	'**Generic communication skills'** applies to all professionals who work with people who have self-harmed and/or are suicidal. '**Communication skills'** are fundamental to working with people who have self-harmed and/or are suicidal, and this section of the framework identifies the techniques that can be used to encourage open and collaborative discussion. When communicating with a person in such circumstances, professionals should be able to draw on basic communication skills so that people feel that they are: • being respected, heard and understood • connected to others by sharing their experience with those involved in their support • able to express themselves in their own words • able to reflect on what might help them in this situation, with the help of those involved in their support. There is also a set of specific competences around communicating with children and young people in '**Ability to communicate with children and young people of differing ages and developmental levels'**. All professionals should keep these in mind when interacting with children and young people and attempt to align their style of interaction to the child's or young person's level of understanding, adapting it to follow patterns of engagement most natural for the child or young person. Some people will have specific difficulties with communicating, which may be misinterpreted as a reluctance to talk or cooperate. Sometimes this can be explained by the heightened emotions associated with self-harm, but it can also be due to any coexisting conditions that might have an impact on communication style. The competences within '**Ability to communicate with people with neurodevelopmental conditions'** identify three conditions that strongly influence the ways in which people interact, namely; learning disabilities, autism spectrum disorders, attention deficit hyperactivity disorder (ADHD). However, these competences can also be used when communicating with people with sensory deficits or other speech and language problems. As well as providing specific guidance on communication issues, this part of the framework is also intended to illustrate how workers may need to adapt their approach while considering the reasons for any challenges to communication with the person. Finally, the role of '**Signposting/enabling'** is outlined, setting out the competences needed to direct people to resources and sources of support. There is the need not only to identify these sources of support, but also to facilitate their uptake by the person.
Collaborative assessment and planning	Some professionals who work in the public may need to complete an assessment of risk, strength and needs with the person who has self-harmed or is feeling suicidal. It is less likely that professionals will need to complete a formulation, however some may find this to be a part of their professional role. This part of the framework focuses on assessment and formulation and starts with '**Ability to undertake a collaborative assessment of risk, needs and strengths'**. This might be a key area within the framework for some professionals and as such, it is important to recognise the limitations of assessment. Through research and practice, a large number of factors have been identified as associated with risk, but these have limited predictive value, meaning that, at best, assessments can only apply to the short-term outlook and should not be used to plan for the longer term. This is not to say that risk assessments should not be undertaken, but to emphasise that they cannot be solely relied on or used as a way of neglecting ongoing observations and assessments that might identify shifts in the person's mental state and intentions. A second theme in this part of the framework is the importance of undertaking a collaborative person-centred assessment that considers risk in the context of needs. The assessment of people presenting with self-harm should include consideration of their history and context. The '**Ability to assess a person's wider circumstances'** ensures that the person is seen holistically, making it more likely that the factors that have led to self-harm can be determined. The '**Ability to develop a formulation'** might be a step for some professionals during the assessment process, as this is the point at which information is gathered together into a coherent account that helps to understand the determinants of self-harm and/or suicidal thoughts and the factors that maintain it. If completing a formulation is part of a professional's role, this is an exercise that should be shared with the person to test its accuracy and to confirm the person's sense of its relevance. The '**Ability to collaboratively engage a person with the intervention plan'** that is developed as a result of the formulation is the next part of the process. An intervention plan should not be imposed on a person. Rather, professionals should engage the person (and their family, carers or significant others) throughout the decision-making process to give them the ability to explore support, care or treatment options and understand each other fully. Together with the professionals' guidance, they can develop an intervention plan that all parties agree with and understand. If the person feels a lack of control over decisions about themselves, there is a risk they will disengage, so this is an important part of ongoing support with the person. Commonly, the intervention plan will involve professionals from a wide range of agencies, so the '**Ability to signpost/refer to and coordinate with services'** may be a key part of this planning process.
Structured support	Although most professionals who work in the community or in the wider general public will not be undertaking specific interventions, they may contribute to some form of '**Structured support'**. This support should be tailored to individual need, be specifically adapted for people who have self-harmed and/or are suicidal, and focus on the management of selfharm and/or suicidal thoughts or behaviour either in the immediate sense or in the form of longer-term support within the community. Two components are included here, '**Crisis intervention'** and '**Safety planning'**. Although there is some overlap in these areas, each is part of a process, applicable at different points in a person's presentation. Although these may not be the only approaches that work in this context, they have been used in practice and if delivered proactively have been found to contribute to keeping a person safe. These forms of support can be offered by any professional who may be supporting a person who has self-harmed and/or is suicidal. The competences within this part of the framework should enable non-clinicians to feel confident to offer this support and intervention to anyone who might need it.
Meta-competences	**Meta-competences refer to the use of judgement when carrying out an activity**. These are relevant to all aspects of practice, and professionals often need to make decisions about whether, when or how to carry out an activity. Adapting and updating practice in a way that is tailored to the person and consistent with appropriate principles and evidence is an important marker of competence.