**Death and dying in pre-hospital care: what are the experiences and issues for pre-hospital practitioners, families and bystanders? A scoping review.**

Michelle Myall1, Alison Rowsell1, Susi Lund1, Joanne Turnbull1, Mick Arber5, Rob Crouch1, 2 , Helen Pocock3,6, Charles D. Deakin3, 4, Alison Richardson1, 2

1. School of Health Sciences, University of Southampton, Building 67, Highfield Campus, University Road, Southampton SO17 1BJ, UK

2. University Hospital Southampton NHS Foundation Trust, Southampton General Hospital, Mailpoint 11, Clinical Academic Facility (Room AA102), South Academic Block, Tremona Road, Southampton, SO16 6YD, UK

3. South Central Ambulance Service NHS Foundation Trust, Otterbourne, SO21 2RU, UK

4. NIHR Southampton Respiratory Biomedical Research Unit, University of Southampton, Southampton, SO16 6YD, UK

5. York Health Economics Consortium, Enterprise House, Innovation Way, University of York, YO10 5NQ, UK.

6. Warwick Clinical Trials Unit, Warwick Medical School, University of Warwick, Gibbet Hill Road, Coventry, CV4 7AL, UK.

**Corresponding author:** Dr Michelle Myall, School of Health Sciences, University of Southampton, Building 67, Highfield Campus, University Road, Southampton SO17 1BJ, UK. Email: m.myall@soton.ac.uk Tel: 023 8059 7955

**Word count:** 4,302

**ABSTRACT**

**Objective:** To identify the factors that shape and characterise experiences of pre-hospital practitioners (PHPs), families, and bystanders in the context of death and dying outside of the hospital environment where PHPs respond.

**Design:** A scoping review using Arksey and O’Malley’s five-stage framework. Papers were analysed using thematic analysis

**Data sources:** MEDLINE; Embase; CINAHL; Scopus; Social Sciences Citation Index (Web of Science), ProQuest Dissertations & Theses A&I (Proquest), Health Technology Assessment (HTA) database; PsycINFO; Grey Literature Report and PapersFirst were searched from January 2000-May 2019.

**Eligibility criteria for selecting studies:** Qualitative and mixed method studies reporting the experiences of PHPs, families and bystanders of death and dying in pre-hospital settings as a result of natural causes, trauma, suicide and homicide, >18 years of age, in Europe, USA, Canada, Australia and New Zealand.

**Results:** Searches identified 15,352 papers of which 51 met the inclusion criteria. The review found substantial evidence of PHP experiences, except call-handlers, and papers reporting family and bystander experiences were limited. PHP work was varied and complex, whilst confident in clinical work, they felt less equipped to deal with the emotion work, especially with an increasing role in palliative and end-of-life care. Families and bystanders reported generally positive experiences but their support needs were rarely explored.

**Conclusions:** To the best of our knowledge this is the first review that explores the experiences of PHPs, families and bystanders. An important outcome is identifying current gaps in knowledge where further empirical research is needed. The paucity of evidence suggested by this review on call-handlers, families and bystanders presents opportunities to investigate their experiences in greater depth. Further research to address the current knowledge gaps will be important to inform future policy and practice.

**KEY WORDS:** death and dying; pre-hospital care; experiences; practitioners; families; bystanders; scoping review

**STRENGTHS AND LIMITATIONS**

* To our knowledge this is the first review to focus on practitioner, family and bystander experience of death and dying in pre-hospital care (PHC).
* The review will help to make better sense of pre-hospital practitioners, families and bystander experiences and to prioritise, from these perspectives, ways to improve these experiences through support and training that includes ethical issues and challenges faced by the work of death and dying
* The search strategy aimed to balance sensitivity and precision, and pragmatic decisions helped achieved this balance to target studies most likely to be relevant. However, these decisions may also have increased the risk of missing relevant records.
* A focus on healthcare systems similar to that of the United Kingdom was intended to increase transferability of findings. However, differences between these systems, and exclusion of healthcare systems that did not parallel the UK’s may limit transferability.

**INTRODUCTION**

Pre-Hospital Care (PHC) is an essential part of the emergency and urgent care continuum in contemporary healthcare systems across the world [1,2] and includes urgent and emergency medical care that patients receive outside of the hospital setting. In the UK, PHC is provided primarily by regionally based National Health Service (NHS) Ambulance Trusts and comprises other services such as patient transport and NHS 111, a 24-hour online and telephone urgent care service.[3] In some UK regions services are delivered by other providers, including charities and private companies, but in line with NHS principles remain free at the point of access, with some limited exceptions in England. For example, it is a requirement for some overseas students to pay a NHS surcharge or take out private health cover. However, the system in the UK is not reflected worldwide. In Australia, other than in Queensland and Tasmania, ambulance services are covered either by private health insurance or are out of pocket, unless an individual is eligible for a concession such as those over 65 years of age, where cover is free, or in some states offered at a reduced rate.[4] Ambulance services in the United States are operated by private (for-profit and non-profit) and public entities, and with no free universal healthcare in the US are typically paid for by private health insurance or federally funded programmes such as Medicare and Medicaid.[5] Evidence suggests the nature of ambulance provision can influence the service provided.[6]

In the UK there is an increasing demand for PHC services.[3, 4] In England for the period 2014-15 the number of emergency 999 calls to ambulance switchboards totalled 9 million, a rise of over 500,000 from the previous year[7] an increase mirrored in other healthcare systems.[8, 9] Factors contributing to increasing demand are complex and reflect the extent to which work carried out in PHC has been required to react to changes in other parts of the healthcare system.[10] For example, ageing populations with complex needs,[11,12] difficulties in accessing general practitioner (also known as primary care physician) services, [13] and greater patient expectations and how patients seek help,[14] have meant the remit of the service has changed.[15] As an evolving service pre-hospital practitioners (PHP)’ work has become increasingly varied and complex requiring a clinically trained workforce comprising a variety of staffing combinations, such as medical dispatchers, doctors, paramedics, emergency medical technicians, and emergency care practitioners.

The nature of the work of PHPs can range from responding to time-critical emergencies for serious or life-threatening injuries or illnesses, such as cardiac arrests, calls that are less immediately time critical but still serious, to those not considered life threatening. Out of Hospital Cardiac Arrest (OHCA) is a lead cause of death in industrialised society, [16,17] and while it represents a small proportion of PHC (approximately 0.5% of calls to English ambulance services) national response targets place a significant strain on services. In England, during 2014, the ambulance service treated 28,729 cases of OHCA alone,[18] and evidence suggests numbers rising year on year.[19] It is also important to note that of the 60,000 OHCA calls attended by ambulance personnel, where treatment was not appropriate, patient assessment, breaking bad news, and supporting family and bystanders was also an essential part of care delivered.Increasingly, the ambulance service also responds to calls for people who have life-limiting conditions and approaching the end of life (EoL).[20]

As first responders to crises that immediately precede death, confronting death and dying is an intrinsic part of the work of PHPs.[21] When providing care to someone who is dying, or dies, they are often required to make challenging decisions and deal with the clinical and emotional aspects of a situation simultaneously.[22] This requires management of their own feelings and responses, as well others present including family and bystanders who may or may not have an established relationship with the person. In some countries PHPs can verify death. For example, in the UK since 2004, Recognition of Life Extinct (ROLE) guidelines permit qualified PHPs to confirm death and cease resuscitation in the field.[23] Similarly, in the USA and Canada paramedics can confirm death on-scene.[24,25] This aspect of their work has the accompanying responsibility of informing relatives or others present that the patient has died.

The provision of care to someone who is dying, and their relatives, has been identified as one of the most stressful human experiences[22,26] and acknowledged as challenging for healthcare professionals generally.[27,28] For those working in PHC, this may be more complex partly because ambulance crews are immediately required to assess and respond to a situation,[26] and the transient nature of the job may not present opportunities to establish rapport with a dying patient or their relatives, which may have a lasting impact for survivor families into bereavement. In dealing with death and dying PHPs engage in ‘moral work’ needed to navigate the difficult ethical challenges they experience in this particular context. These include managing expectations from families and providing patient-centred care that is in the best interests of the patient. The recent global COVID-19 pandemic has posed additional ethical demands on PHPs.[29] In particular, decision-making may be influenced by the rationing of scarce resources, being unable to provide the level of individual care to patients and families they would under more usual conditions, not being deployed to patients they would have attended previously, and leaving patients at home who otherwise would have been transferred.[30,31] Such ethical challenges may lead to increasing levels of moral distress[32,33] for PHPs who are unable to pursue what they consider to be the right course of action due to varying internal and/or external constraints.

To date, little is known about the effects on families and others present, or support mechanisms in place for relatives or bystanders who witness an incident when a patient dies where PHPs attend. Similarly, while we know that PHPs encounter death and dying routinely in the course of their work, we understand less about the nature of this aspect of their job, the impact of dealing with death and dying, how they manage situations where a patient dies especially when they do not always have opportunities to debrief with their colleagues,[34] or their emotional, psychological, educational and training needs in relation to death and dying.

This review is needed to better inform our understanding about the experiences and needs of PHPs, families and bystanders in the pre-hospital context of death and dying in order to identify areas for further research.

**Aim of the review**

In this paper we present a scoping review that explores evidence guided by the question: *What is known about the factors that shape and characterise experiences of PHPs, families, and bystanders in the context of death and dying outside of the hospital environment where PHPs respond?*

Specific objectives were to:

1) Ascertain experiences of PHPs when providing care to patients, and supporting families and bystanders, and their own support and training needs.

2) Understand types of PHPs’ behaviours and communication strategies enacted for family members and bystanders.

3) Explore families’ and bystanders’ experiences and needs and identify any existing support mechanisms.

**DESIGN AND METHODS**

A scoping review methodology[35-37] was selected as the most appropriate for systematically mapping the literature and identifying key themes, concepts and gaps in knowledge. We usedArksey and O’Malley’s[38] five stage framework for scoping reviews which includes identifying the research question, identifying relevant literature, selection, charting the data and collating, summarising and reporting the results. We also used Levac et al’s recommendations to strengthen methodological rigour.[39]

**Searches and information sources**

Searches were carried out in two stages. Stage 1 comprised an initial search in MEDLINE (OvidSP). The population/problems, exposure/issue, outcome/themes (PEO) framework (see Table 1) informed search development. Search concepts were captured using subject headings and text-word searches in Title, Abstract and Keyword Heading Word fields. Search results from Stage 1 were assessed by the research team. Following analysis of relevant records, additional terms for inclusion in the search strategy were considered. Further strategy development resulted in a final MEDLINE strategy for use in stage two (Figure 1). This final strategy was run in MEDLINE (OvidSP) then translated appropriately for a range of databases including: Embase (OvidSP), CINAHL Complete (EBSCOhost), Scopus (www.scopus.com), Social Sciences Citation Index (Web of Science), ProQuest Dissertations & Theses A&I (Proquest), Health Technology Assessment (HTA) database (https://www.crd.york.ac.uk/CRDWeb), PsycINFO (OvidSP), and Grey Literature Report (<http://www.greylit.org/>). In addition, the PapersFirst database was searched. The database searches were supplemented by checking the reference lists of included papers. All searches were completed by May 2019.

Table 1: PEO Framework

|  |  |  |
| --- | --- | --- |
| P | Population and problems | Family members/bystanders /witnesses/healthcare professionals who have experience of being present when a patient is dying or dies when responded to by pre-hospital services. |
| E/I | Exposure/issue | Death and dying where pre-hospital services respond. |
| O | Outcome/themes | Experiences and views of death and dying where pre-hospital services respond. |

 [INSERT FIGURE 1]

**Exclusion and inclusion criteria**

Papers were selected using specific eligibility criteria outlined in Table 2. Only literature focusing on adult death and dying were included. We excluded papers about children, unless they reported on adult children (those aged > 18 years) or had a combined focus on adults and children

Table 2: Eligibility criteria

|  |  |
| --- | --- |
| **Inclusion criteria** | **Exclusion criteria** |
| Papers reporting studies of adult death and dying in pre-hospital settings | Papers reporting studies of death and dying in healthcare systems outside of Europe, Australia, United States, and Canada and New Zealand. |
| Papers reporting studies of death and dying as a result of trauma, suicide and/or homicide | Papers reporting studies on response to incidents of death and dying by non-medical emergency services |
| Papers reporting studies of death and dying as a result of natural causes | Papers reporting clinical trials and randomised controlled trials, cohort studies, mixed-methods studies without a substantial qualitative element, cost studies. |
| Papers reporting studies including families’ and/or bystanders’ experience of death and dying of a patient where pre-hospital services respond | Non-English language papers |
| Papers reporting studies of healthcare professionals’ experience of providing pre-hospital care to those who are dying or die  | Papers published before 1 January 2000  |
| Papers published in English language | Purely anecdotal or commentary, newspaper articles  |
| Papers published between 2000 and 2019 | Papers reporting studies focused on children  |
| Qualitative and mixed method studies (with a substantial qualitative element) | Papers reporting on studies focussed on war or terrorism |
| Published conference abstracts/papers |  |
| Relevant grey literature from searches (e.g. experiences of real clinical practice). |  |
| Dissertations and theses  |  |

**Paper selection**

The Stage 1 search results were imported into the bibliographical software management package EndNote X8.2 and assessed. The Stage 2 results were imported into the same EndNote library and results were de-duplicated. Stage 2 results remaining after deduplication were assessed. An extensive screening process was undertaken. At the first stage, two independent reviewers (ARo, SL) screened record titles and abstracts for relevance against the screening criteria. Abstracts were double-screened (MM) where there were any doubts about eligibility. Full text papers were screened in pairs (ARo, JT) (MM, SL); both reviewers in each pair independently screening studies for eligibility. A third reviewer resolved eligibility disagreements. Grey literature was reviewed and discussed within the team to agree relevance.

**Data extraction**

In line with Arksey and O’Malley’s framework data extraction (charting) was multi-staged. In Stage 1 descriptive characteristics from each included paper were collected. In Stage 2 findings and discussion sections of papers were extracted into a data extraction tool. In accordance with Levac et al [39] recommendation, two reviewers independently extracted and checked data extraction.

**Quality appraisal**

While assessing the quality of literature included is not a requirement of scoping reviews, we undertook quality appraisal of included full text papers from peer-reviewed journals using the Critical Appraisal Skills Programme (CASP) Quality Assessment Tool - qualitative checklist[40] independently conducted by two researchers. CASP identifies 10 core questions but does not define how overall quality scores should be defined. We scored papers out of ten and expressed a percentage, those scoring ≥80% were rated as high (H), papers between 60-80% as medium (M) and those rated below ≤ 60% as low (L). (See Table 3). Quality appraisal was primarily conducted to illuminate transparency of design, aims and objectives, and sample population. However, as is standard to scoping reviews no papers were excluded on grounds of quality. Overall, we scored 29 papers as high quality, 6 medium and 3 low quality. Mixed method papers with qualitative free text responses only, conference abstracts, dissertations and book chapters (n=13) were not assessed for quality.

**Data analysis**

Data extracted were treated as qualitative data and subject to thematic analysis using Braun and Clarke’s approach.[41] Themes were generated during the full text review and these were discussed within the review team and grouped together. In line with Arksey and O’Malley’s framework for analysis a descriptive overview of findings, rather than a full synthesis of the evidence is provided.[38]

**RESULTS**

Searches identified 15,352 records. Following deduplication 8,186 records remained for assessment. After assessment, 51 papers were included in the review. Figure 2 shows the review process using the PRISMA-ScR flow diagram.[35,40]

[INSERT FIGURE 2]

**Characteristics of papers**

Details of included papers are outlined in Table 3. Key descriptive information of included papers is as follows: there were 42 journal articles, five conference abstracts, one book chapter and three dissertations. Reported studies were conducted in the UK (n=16), Europe (n=12), USA (n=9), Canada (n=9) Australia (n=3) and New Zealand (n=2). The majority of papers focussed on cardiac events (n=15), and palliative and End of Life Care (EoLC) experiences in PHC (n=21). Suicide (n=4), critical incidents (n=3) and the impact of this work (n=8) were also a focus. Papers reported on the experiences of PHPs only (n=39), families (n=2), families and PHPs (n=6), bystanders (n=2), bystanders and PHPs (n=1), and bystanders and families (n=1). In terms of methodology 38 papers were qualitative and 13 were mixed method.

Analysis identified four main themes: experiences of death and dying and its impact; experiences of education and training and unmet needs; support needs and experiences; communication and behaviour. Relevant themes are discussed in relation to the three main stakeholder groups: pre-hospital practitioners, families, and bystanders.

|  |
| --- |
| **Table 3: Characteristics of included studies** |
| **Author/ Year/****Publication Type** | **Country and Setting** | **Participants** | **Aims/objectives** | **Data collection methods reported** | **Main findings and conclusions** | **CASP rating (%), H/M/L[[1]](#footnote-1),**  |
| Brighton 2019Journal Paper | UKHospital, palliative care EoLC | Generalist palliative care staff including ambulance personnel | To explore generalist palliative care providers’ experiences of emotional labour when undertaking conversations around palliative and end-of-life care with patients and families, to inform supportive strategies | QualitativeInterviews | Participants reported balancing ‘human’ and ‘professional’ expressions of emotion. Support needs included time for emotion management, workplace cultures that normalise emotional experiences, formal emotional support, and palliative and end-of-life care skills training.Diverse strategies to support the emotional needs of generalist staff are crucial to ensure high-quality EoLC and communication, and to support staff well-being. | 10 (100%)- H |
| Carter 2019Journal Paper | CanadaCommunity palliative care | Paramedics Family Members  | To evaluate patient/family satisfaction and paramedic comfort and confidence following a paramedics in palliative care training programme | Mixed MethodsSurveyInterviews | Paramedics describe palliative care as an important and rewarding part of their work. The programme resulted in high patient/family satisfaction and a positive experience of care. Families particularly noted the compassion and professionalism of paramedics. | 8 (80%)-H |
| Fallat2019 Journal Paper | USAPre -Hospital (OOH) | EMS staffFamily Members  | To understand how family members’ view the ways Emergency Medical Services (EMS) and other first responders interact with distressed family members during an intervention involving a recent or impending paediatric or adult child death. | Mixed MethodsInterviewsSurvey | Family reactions to the crisis and the professional response by first responders were critical to family coping and getting necessary support. Critical competencies identified to help the family cope including: (1) that first responders provide excellent and expeditious care with seamless coordination, (2) allowing family to witness the resuscitation including the attempts to save the child’s life, (3) providing ongoing communication. | 5 (50%)-L |
| Moffat 2019Journal Paper | UKPre-Hospital | Ambulance personnel | To investigate ambulance clinicians’ experiences of DNACPR documentation and views concerning potential future changes. | Mixed MethodsInterviewsOnline questionnaire | Significant increase in numbers of community DNACPR forms has occurred in recent years. Lack of formal DNACPR education, inappropriate CPR attempts and poor communication among stakeholders. Recommendations for a national approach to DNACPR decisions and their documentation. | 9 (90%)-H |
| Ortega- Galan 2019Journal Paper | SpainHospital, Primary Care Health Care Centres | Family Members  | To discover the experiences of end-of-life patients attended by the emergency services, through the discourse of the family caregivers who accompanied the family member in this care transit. | Qualitative InterviewsFocus groups | Deficiencies in urgent care identified: disorganisation of the care received, lack of experience of the professionals in emergencies, application of general protocols in the emergency services, inadequate care in the treatment received, delays in emergency care’.  | 8 (80%)-H |
| Waldrop 2019 Journal Paper | USAPre-Hospital | Emergency Medical Technicians Paramedics  | To explore pre-hospital providers’ perspectives on how the awareness of dying and documentation of end-of-life wishes influence decision-making on emergency calls near the end of life. | Qualitative Interviews | Findings illustrate the relationship between awareness of dying and documentation of wishes in EMS calls. EMS providers are acutely aware of the impact of their decisions and actions on families at the end of life.  | 10 (100%)-H |
| Anderson 2018Journal Paper | New ZealandPre-Hospital | Ambulance Personnel  | To explore ambulance personnel’s decisions to commence, continue,withhold or terminate resuscitation efforts for patients with out-of-hospital cardiac arrest. | Qualitative Interviews  | Participants sought and integrated numerous factors, beyond established prognostic indicators: pre-arrival impressions, immediate on-scene impressions, piecing together the big picture and transition to termination of resuscitation.Ambulance personnel may benefit from greater educational preparation and mentoring in managing the scene of a death to avoid inappropriate or prolonged resuscitation efforts. | 10 (100%)-H |
| Donnelly 2018Journal Paper | USAHospice  | Emergency Medical Technicians  | To assess the knowledge, attitudes, and experiences of EMS providers in the care of patients enrolled in hospice care. | Mixed MethodSurvey including free text boxes | Themes were family-related challenges, and the need for more education. | Not completed - free text questionnaire responses only  |
| Dow 2018Dissertation | USAPre-Hospital | ParamedicsOther Emergency Staff | To look at the relationship between personal, environmental and organisational stress in EMS | Qualitative InterviewsFocus groupsObservations | Findings signify a need to develop and utilize stress management and prevention programs to educate paramedics to increase awareness, recognize the signs and symptoms of stress and learn coping techniques to mitigate the effects encountered. | Not completed - dissertation |
| Hoare 2018Journal Paper | UKPre-Hospital | Ambulance Staff Next of Kin  | To understand the role of ambulance staff in the admission to hospital of patients close to the end of life. | Qualitative interviews | Ambulance staff have an important role in the admission of end-of-life patients to hospital, frequently having to decide whether to leave a patient at home or to instigate transfer to hospital. Their difficulty in facilitating non-hospital care at the end of life challenges the negative view of near end-of-life hospital admissions as failures. Hospital provision was sought for dying patients in need of care which was inaccessible in the community. | 10 (100%)-H |
| Mainds 2018Journal Paper | UKPre-Hospital | Paramedics  | To provide an insight into the non-clinical challenges of an OHCA and, how the family members are managed during these difficult incidents. | QualitativeFocus groups | Paramedics prefer family not to be present during resuscitation. Use distraction and ‘warning shots’ throughout resuscitation to prepare the family for bad news. Do not feel sufficiently prepared by their paramedic courses in managing family during OHCAsLearn how to manage family and BBN by watching experienced colleagues. | 10 (100%)-H |
| Waldrop 2018Journal Paper | USAPre-Hospital | Paramedics  | To investigate perceptions of emergency calls at EOL in Long Term Care facilities.  | Qualitative Interviews | Contributing factors for calls are care crises; dying-related turmoil; staffing ratios; and organizational protocols. Pre-hospital providers become mediators between NHS and emergency departments by managing tension, conflict, and challenges in patient care between these systems. | 10 (100%)-H |
| Wilson 2018Journal Paper | CanadaHospital and community settings  | Nurses, healthcare professionals, patients and families | To identify current issues and problems with care setting transitions at EoL- producing solutions. | Qualitative Interviews | Three interrelated themes were revealed: (a) communication complexities, (b) care planning and coordination gaps and (c) health system reform needs.  | 8 (80%)- H |
| Armitage 2017Journal Paper | UKPre-Hospital | Paramedics  | To explore paramedic attitudes towards DNACPR orders. | Mixed methodQuestionnaire with free text boxes | The importance of communication in relation to DNACPR orders, as well as the role of allied health professionals and family members in the process. Respecting the patient's wishes was considered paramount, as was educational provision surrounding DNACPRs. | 5 (50%)-L |
| Fernandez-Aedo 2017Journal Paper | SpainPre-Hospital | Emergency Nurses Emergency Medical Technicians  | To explore the experiences, emotions and coping skills among emergency medical technicians and emergency nurses after performing out-of-hospital cardiopulmonary resuscitation manoeuvres resulting in death. | Qualitative InterviewsFocus groups | Failed resuscitation results in short and long-term reactions. Negatives, such as sadness or uncertainty, or positives, such as the feeling of having done everything possible to save the patient’s life. Emotional stress increases when ambulance staff have to talk with the deceased’s family or when the patient is a child. The workers do not know of a coping strategy other than talking about their emotions with their colleagues.  | 10 (100%)-H |
| Kirk 2017Journal Paper | UKPre-Hospital | Paramedics  | To understand the perceptions and confidence of paramedics in their role in EOLC in the community | SurveyOpen questions text boxes | Paramedics agree EoLC is part of their role but feel they need more education. Length of experience and EoL experience increased confidence. Concerns reported about documentation, litigation and a perceived lack of communication. | Not completed - free text questionnaire responses only |
| Nilsson 2017Journal Paper | SwedenWork Places  | EMS Personnel  | To describe experiences of supporting survivors of suicide victims from the perspectives of EMS personnel, police officers and general practitioners. | QualitativeFocus Groups | Professionals make a deliberate choice to acknowledge the needs of survivors by facing their caring responsibilities and providing compassionate care.  | 10 (100%)-H |
| Clompus 2016Journal Paper | UKStudy Centre | Paramedics Emergency Care Practitioners  | To explore how paramedics survive their work within the current healthcare climate. | Qualitative Narrative Interviews  | Coping and resilience was impacted upon via formal methods of support including management, debriefing and referral to outside agencies Informal methods included peer support, support from family and friends and the use of humour. | 9 (90%)-H |
| Davey 2016Journal Paper | New ZealandPre-hospital | Paramedics  | To highlight and explore underlying values present within practice-based decisions that focus on advance directives. | Survey Free Text Responses | Findings revealed legal tensions, multiple constructs of dignity and seeking solutions that support clinical practice. Greater legal guidance and increased professional education in law and ethics are recommended.  | Not completed free text questionnaire responses only |
| Mathiesen 2016Journal Paper | NorwayPre-Hospital | Lay Rescuers (Bystanders) | To explore lay rescuers’ (bystanders) reactions, coping strategies after providing CPR to OHCA victims. | Qualitative Interviews | Lay rescuers’ (bystanders) experience emotional and social challenges, concern and uncertainty after providing CPR in OHCA incidents. Common coping strategies are attempts to reduce uncertainty towards patient outcome and own CPR quality. | 9 (90%)-H |
| Murphy-Jones 2016Journal Paper | UKNHS Ambulance Trust | Paramedics  | To explore paramedic decision-making when transporting nursing home residents nearing EOL. | Qualitative Interviews | Paramedics identified difficulties in understanding nursing home residents’ wishes. Used best interest decision-making, weighing the risks and benefits of hospitalisation. Decision making became a process of negotiation when the patient’s perceived best interests conflicted with that of others, resulting in contrasting approaches by paramedics. | 8 (80%)-H |
| Peters 2016Journal Paper | AustraliaPre-Hospital | Bereaved family members following a suicide  | To explore participants’ perceptions of helpful/unhelpful interactions with services, family, and friends after a suicide death of a family member. | Qualitative Narrative  | Responses by agencies are often insensitive and not aligned with the needs of those bereaved.Training for agency staff in supporting the suicide bereaved in both the immediate aftermath of a death and their longer term needs is required.  | 6 (60%)-L |
| Waldrop 2016Conference Abstract | USAPre-HospitalAmbulance Care | Pre-Hospital Providers  | To explore pre-hospital providers decision making when encountering imminent death from serious illness. | Mixed MethodSurveyInterviews  | EoL challenges in long-term care (LTC) include limited understanding, inconsistent reliance on and variable trust in written directives by LTC staff.EMS providers’ decision-making can be solidified by accurate and available written directives.  | Conference abstract –not completed |
| Wines 2016Dissertation  | USAPre-Hospital | Paramedics Emergency Medical Technicians | To explore paramedics /Emergency Medical Technicians experiences responding to completed suicides where a deceased’s loved one is present. | QualitativeInterviews | EMS personnel identified experiences of direct and indirect traumatization as a result of their work. Negative emotions that relate to symptoms of burnout, compassion fatigue, and vicarious traumatization. Also personal characteristics that mitigate the negative emotions and help them to find meaning in their job. | Dissertation- not completed  |
| Hitt 2015 Conference abstract | UKPre-Hospital | Ambulance Service Resource Dispatchers (RD)  | To understand factors influencing Resource Dispatchers (RD) decision making process when managing ambulance resources attending OHCA and how these decisions might impact on resource availability. | Qualitative Interviews | OHCA is prioritised above other time critical emergencies. Decisions are made rapidly, under pressure and with very little clinical information to hand. A significant amount of time was spent dealing with deceased patients which may affect resource availability and subsequently delay treatment of other critically ill and injured patients. | Conference abstract –not completed |
| Masquelier 2015 Conference Abstract | BelgiumHospital | Emergency Care ProviderFamily members  | To explore how family members and emergency care providers (ECP) perceive and experience family presence during resuscitative events (FPDR) in adult emergency care settings. Also to understand how these perceptions influence their notion of FPDR. | Qualitative Interviews | Absolute focus on the patient is of paramount importance. By transferring their needs and perceptions to the background, family members help the ECP’s to focus on the patient. In case of a non-successful resuscitation family members and ECP’s can reassure each other that all efforts were not in vain. FPDR is for family members an aid in processing the loss of the patient | Conference abstract –not completed |
| Muller 2015Book Chapter | NetherlandsEmergency Medical Services | ParamedicsNurses  | To describe how violence is dealt with in daily paramedic professional activities. | Qualitative Interviews | Paramedics initially ignore verbal abuse because they value the well-being of the patient above their own emotional needs. Managing their own emotions as well as others is essential and achieved through compassion and professionalism - so that bystanders feel that the patient is in good hands.  | Book chapter- not completed  |
| Rogers 2015 Journal paper | AustraliaPre-Hospital | St Johns Ambulance Paramedics  | To measure paramedics' perspectives and educational needs regarding palliative care provision, as well as their understanding of the common causes of death. | Mixed MethodSurvey free textboxes  | Paramedics considered palliative care to be focused strongly on EoLC, symptom control and holistic care. The dominant educational needs identified were ethical issues, end-of-life communication and the use of structured patient care pathways. | Not completed free text questionnaire responses only |
| Waldrop  2015Journal Paper | USAPre-Hospital | Pre-Hospital Providers | To explore and describe pre-hospital providers’ assessments and management of EOL emergency calls. | QualitativeInterviews | The importance of managing symptom crises and stress responses that accompany the dying process is essential to quality care at EoL including managing the emotionality of the event and supporting families. | 10 (100%)-H |
| Jensen 2014 Journal Paper | CanadaEmergency Care Practitioners (ECP) | Emergency Care Practitioners | To identify insights gained, lessons learned from implementation, operation of a novel Paramedic Long Term Care Programme. | Qualitative Focus Groups | The ECP program has positive implications for the relationship between EMS and LTC, requiresadditional paramedic training, and can positively affect LTC patient experiences during acute medical events. ECPs have a role to play in end of life care and find this rewarding. | 9 (90%)-H |
| Munday 2014Conference Abstract | UKPre-Hospital | Paramedics  | To understand Paramedics experiences managing patients with Advanced Cancer and Chronic Obstructive Pulmonary Disease (COPD). | Qualitative Interviews | Paramedics report managing patients with advanced COPD and cancer to be challenging. However, after undertaking training and receiving support from community professionals, they are able to make decisions to not transfer to ED. Making alternative arrangements was more time-consuming than admitting patients to ED. | Conference abstract –not completed |
| Rant 2014Journal Paper | SloveniaEmergency Medical Units | Paramedics Nurses  | To understand paramedics Nurses experience of and attitudes to, suicidal patients when treating them. | Qualitative Interviews | Paramedics demonstrate a professional and understanding approach. They may experience dilemmas while treating suicidal patients, especially those that refuse help or are aggressive. They act according to their subjective risk assessment and previous work experience, yet they lack the expertise to work with suicidal patients, particularly communication skills. | 9 (90%)-H |
| Walker 2014Journal Paper | UKAmbulance Trust | Paramedics and nurses | To explore the lived experience of lay presence during adult CPR: Out-Of-Hospital and In-Hospital. | Qualitative Interviews | There were a combination of benefits and concerns. Familiarity of working in the presence of lay people, practical experience in emergency care and personal confidence were important. Divergent practices within and across the contexts of care were revealed. | 10 (100%)-H |
| Douglas 2013Journal Paper | CanadaParamedic Service | Paramedics  | To explore paramedics’ experiences with death notification education. | QualitativeFocus Groups | Paramedics learn to communicate death notifications by observing others and by trial and error and there is a lack of formal death notification education. Paramedics want to learn about the practical aspects of communicating death notifications, managing the reactions of the bereaved, the cultural and religious aspects of death, as well as their personal reactions to death.  | 8 (80%)-H |
| Moller 2013Conference Abstract | DenmarkPre-hospital | Medical DispatchersLay People (Bystanders) | To develop a concept for systematicfeedback to laypeople by exploring lay peoples’ need for feedback interviews after performing CPR and by identifying practical and legal barriers to provide systematic feedback. | QualitativeInterviews  | Themes identified were the challenge of identifying OHCA, collaboration with the medical dispatcher and the ambulance crew, coping with the experience of sudden death, reflections on what more could have been done and experience for the future, the outcome of the patient and the perceptual experience with OHCA. | Conference abstract –not completed |
| Robinson 2013Journal Paper | UKPre-hospital | Ambulance Service WorkersLegal Professionals   |  To explore professionals’ experiences on the implementation of advance care planning in two areas of clinical care, dementia and palliative care. | QualitativeFocus GroupsInterviews  | There was uncertainty over the general value of advance care planning, whether current service provision could meet patient wishes, their individual roles and responsibilities and which aspects of advance care planning were legally binding; the array of different advance care planning forms and documentation available added to the confusion | 10 (100%)-H |
| Williams 2013Journal Paper | UKParamedic students | Pre-registration Paramedic Science Students | To explore student paramedic perceptions and experiences of emotion work and the strategies used to deal with it. | QualitativeInterviews  | The findings reveal evidence of emotion work in emergency situations where there is a need to control and suppress emotions to do the job, struggling with emotion and a need for talking it through. | 7 (70%)-M |
| Bremer 2012Journal Paper | SwedenPre-Hospital | EMS Personnel  | To analyse EMS personnel's experiences of caring for families when patients suffer cardiac arrest and sudden death. | Qualitative Interviews | EMS felt responsible for both patient and family care, and sometimes failed to prioritise these responsibilities as a result of their own perceptions, feelings and reactions. Moving from patient care to family care implied a movement from well-structured guidance to a situational response, where the personnel were forced to balance between interpretive reasoning and a more direct emotional response.Ethical caring competence is needed in the care of bereaved family members to avoid additional suffering. | 9 (90%)-H |
| Douglas 2012Journal Paper | CanadaPre-Hospital  | Ambulance Service ParamedicsPrimary Care Advanced Care  | To explore paramedics’ experiences and coping strategies with deathnotification in the field. | QualitativeFocus Groups | Paramedics’ experiences with death notification are stressful, challenging, and rewarding. More formal support for paramedics is necessary, especially when the nature of the death is distressing. | 6 (60%)-L |
| Lord 2012Journal Paper | AustraliaPre-Hospital  | Paramedics  | To identify paramedics’ knowledge, beliefs, and attitudes related to the care of patients requiring palliativecare in community health settings. | QualitativeFocus GroupsInterviews | Findings identified conflict in goals of care, legal issues, access to information and challenges of organizational policy and clinical practice guidelines. | 7 (70%)-M |
| Timmons 2010Journal Paper | UKPublic Places | Staff trained in first aid/AED use working in public places  | To explore perceptions of the training how staff understood the use of the Automated External Defibrillator | Qualitative Interviews | The interpreted social affordance of the AED was to delay and displace the moment and site of death and confirms that death in public space is a disturbing event for those involved in dealing with the death and its aftermath. | 6 (60%)-L |
| Bremer 2009Journal Paper | SwedenPre-Hospital | Families Emergency Personnel | To describe the experiences of significant others present at OHCA, focusing on ethical aspects and values. | Qualitative Interviews  | OHCA can be stated as unreality in the reality and is characterized by overwhelming responsibility. The significant others experience inadequacy and limitation, they move between hope and hopelessness, and they struggle with ethical considerations and an insecurity about the future. | 10 (100%)-H |
| Halpern 2009aJournal Paper | CanadaEMS Organisation | Mandatory Continuing Medical Education Programme Volunteers  | To characterise critical incidents and elicit intervention suggestions. | Qualitative InterviewsFocus Groups | Ambulance workers suffer considerable distress from critical incidents and would welcome interventions.Difficulty in acknowledging distress and fear of stigma presented significant barriers to accessing support. | 10 (100%)-H |
| Halpern 2009bJournal Paper | CanadaEMS Organisation | Emergency Medical Technicians  | To explore and describe Emergency Medical Technicians’ (EMTs) experiences of critical incidents and views about potential interventions, in order to facilitate development of interventions that take into account EMS culture. | Qualitative InterviewsFocus Groups | Following critical incidents ambulance workers identify two workplace resources in the immediate aftermath of an incident: supervisor support; and a brief timeout period in which to talk informally, often with peers as important for their recovery. | 9 (90%)-H |
| Gallagher 2008Journal Paper | UK/IrelandAmbulance Care | Emergency Medical TechniciansEmergency Medical Clinicians  | To assess the nature and impact of critical incidents on health and well-being; examine attitudes toward support services; and explore barriers to service use. | Qualitative Interviews | Exposure to critical incidents has a significant impact on health and well-being; this has important implications for recognizing and appropriately addressing the health and training needs of ambulance personnel, including the effective management of Critical Incident Stress. | 9 (90%)-H |
| Andrus 2007 Dissertation  | USACommunity Hospital | Volunteer First Aid Squads Volunteer EMTs   | To explore Volunteer EMTs understanding of Out of Hours DNRs. | Mixed MethodsSurvey Narrative Interviews | Findings indicate a lack of Out of Hospital Do Not Resuscitate Orders at cardiac arrest calls; benefits and harms of cardiopulmonary resuscitation; chaotic cardiopulmonary resuscitation and family environments and EMTs as virtuous agents. There are also ethical versus legal concerns and potential for getting drawn into drama of family tragedy. | Dissertation-not completed |
| Jonsson 2004Journal Paper | SwedenAmbulance Stations | Ambulance Staff  | To uncover and obtain in-depth understanding of the way ambulance staff experience and handle traumatic events and to develop an understanding of the life world of the participants. | QualitativeInterviews | The findings show that post-traumatic stress symptoms, guilt, shame and self-reproach are common after duty-related traumatic events. To handle these overwhelming feelings it is necessary to talk about them with fellow workers, friends or family members.  | 8 (80%)-H |
| Jonsson 2003Journal Paper | SwedenAmbulance Care | Ambulance Workers (nurses)  | To uncover the essence of traumatic events experienced by Swedish ambulance personnel. | Qualitative Written stories | Findings indicate that staff have a strong identification with the victims and it is impossible to prepare for events that are unforeseen and meaningless. To handle the overwhelming feelings of identification, ambulance personnel have to gain understanding through talking about those feelings.  | 9 (90%)-H |
| Regehr 2003Journal Paper | CanadaEmergency Service  | Emergency Service Professionals Paramedics Firefighters Police  | To understand experiences when testifying at post-mortem reviews following death of person in their care, death during involvement in incident. | QualitativeMethod not reported | To meet their goal of improving service, it is important that organizations provide support for emergency responders participating in death inquiries. | 6 (60%)-L |
| Regehr 2002Journal Paper | CanadaAmbulance CareEmergency Service | Paramedics  | To better understand factors that lead to higher levels of distress among paramedics  | Mixed MethodQuestionnairesInterviews | Paramedics deal with the events cognitively and technically while maintaining an emotional distance. At times, an emotional connection with events based on their awareness of other aspects of the patient’s experience. When this occurs, paramedics report increased symptoms of traumatic stress. | 8 (80%)-H |
| Ruston 2001Journal Paper | UKGeneral Hospitals | Patients Relatives/Bystanders  | To explore lay decision-making at the time of a cardiac event and address the question of why people do not call for an ambulance. | Qualitative Interviews | Lack of knowledge of the role of emergency services and confusion about whether symptoms were serious enough to warrant calling for an ambulance. | 3 (30%)-L |

**Pre-hospital Practitioners (PHPs) experiences, education and support needs**

Experience and impact of death and dying

Experiences of PHPs were characterised by feelings of responsibility towards patients and families and prioritising their needs above their own. There were a number of pressures and stressful tasks identified whilst attending scenes where dying or death had occurred, including responding alone.[42] Concerns about legal issues related to resuscitations and ethical dilemmas faced by paramedics were also articulated.[43,44] For example, where a Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) order was in place, but families requested resuscitation efforts. When providing care to patients, and supporting families and bystanders dealing with death and dying, the emotional labour (the process by which workers manage or supress their feelings to maintain an outward appearance to protect or care for the feelings of others)[45] was implicit[46-48] and could result in symptoms of stress and Post-Traumatic Stress Disorder (PTSD).[49] PHPs also described adverse physiological impacts (e.g., on sleep, diet) and an impact on family life. Feelings of failure and guilt and thoughts about what had happened to patients after they reached the hospital emergency department were a concern. Critical incidents, such as premature deaths,[50-52] suicide,[46, 52-54] OHCA and failed resuscitations[55] were especially characterised by intense emotional labour and feelings of inadequacy.

In the UK, USA, and Canada an increasing demand for PHPs to support patients at end of life (EoL) was reported. Papers focused on PHPs perceptions of providing EoLC,[43, 56-58] EoL calls,[21, 59, 60] hospital transfer/transport[56, 61, 62] and EoLC setting transitions.[62, 63] Decision-making about keeping patients close to the EoL at home was complex and experiences of EoLC provision were characterised by emotional labour,[64] care crises, lack of co-ordination, a need for mediation between services[59] and gaps in communication. [57 59, 60, 65] PHPs often found it difficult to ascertain patients’ EoL wishes. This was compounded by uncertainty and lack of availability of EoL advance directives and care planning, which hindered their ability to keep patients at home.[44, 57, 61, 65, ] PHPs faced a range of system level barriers and poor EoLC co-ordination between services.[62, 66] Informing families of death was also noted as an especially stressful, time-consuming and challenging task.[24]

Resuscitation and OHCA were also described as particularly intense and stressful experiences, characterised by intense emotions.[55 67-71] PHPs described complex decision-making around cardiac arrests,[65] the technical abilities required alongside providing holistic care[72] and difficult processes of negotiation with co-workers, other HCPs and families. There was inadequate communication around Out of Hospital DNACPR orders.[73-75]

Managing the work of death and dying

PHPs used a variety of strategies to manage the work of caring for patients who died or were dying, such as collecting as much on-scene information as possible before arrival, especially when attending OHCAs.[67] This was important for understanding the context and dealing with emotional aspects. While on-scene, coping strategies such as detachment, surface acting,[42, 53] humour,[42] and in the case of suicides, focusing on survivors were used. Despite the psychological and physiological impact of caring for patients and relatives in pre-hospital contexts of death and dying PHPs also identified personal meaning, such as identifying with families because of their own experience of death and rewards from work in this environment[53] including a sense of pride from a job well done.[76]

Perceptions on the presence of families

The presence of family members and bystanders when attending death and dying calls provoked mixed reactions from PHPs, irrespective of context (e.g., OHCA, EoLC).[55, 71] During OHCAs, some PHPs preferred families not to be present in the room during resuscitation and described feeling pressure from families, and expressions of disquiet related to their presence.[69] Others considered that relatives could aid resuscitation by putting on hold their own feelings and emotions, thus helping PHPs focus on the condition of the patient.[76, 77] PHPs and families could provide mutual reassurance following unsuccessful resuscitations, that efforts were not inappropriate.[76] Where there were conflicts with family members, for example over resuscitation,[76] staff managed these tensions by assigning them roles in the resuscitation efforts, such as giving them a bag of fluids to hold.[78] The feeling that relatives were being useful could help to prevent tensions from escalating.

Training and education needs

A lack of sufficient training around communication and relational aspects of death and dying, palliative and EoLC,[24, 25, 43, 58-60, 79, 80] OHCA and DNACPR,[67, 69, 73, 75] death notifications,[24, 25] and breaking bad news[55, 69] was evident in the review. PHPs identified deficits in training around DNACPR orders,[73, 75] dealing with suicide,[46, 52-54] managing bereavement,[71] communicating bad news and emotion work.[47, 50, 69] PHPs attending OHCAs, felt training did not adequately prepare them to manage families during cardiac arrests.[69] In addition to better training, papers identified a need for national level guidance and documentation around resuscitation.[73] PHPs described learning on the job through observing their colleagues,[69] and wanted training and mentoring from other healthcare professionals and peers.[67]

Support needs

In a work environment, characterised by intense emotional demands, PHPs reported a need for several dimensions of support not always available, including time-out periods, protected time after stressful calls, and colleague, supervisor and management support.[50, 51] A physical space for reflection and collective support from peers was especially important.[50, 51] Support received from management and at an organisational level was described as mixed ranging from positive, empathic support and provision of time out, [50, 51] to an absence of a climate of care[52] and lack of concern from management.[50, 51, 81, 82] Staff described the stigma surrounding expressions of stress experienced within organisations[50 51] and while professional services and peer support services were available,[52] uptake of these was variable, with concerns raised about being treated as an ‘outcast’ for accessing such services.

**Experiences, impact and needs of families**

Few papers focussed on family and significant others’ experiences but, those that did reported the lasting impact of these events.[61, 68, 70, 77, 83, 84] Included papers reported on family experiences in pre-hospital palliative and EoLC,[61, 68, 83] OHCA,[70, 77] resuscitation[76] and suicide.[84] Witnessing a family member die or dying was reported as having a significant effect on relatives and particularly at OHCAs, families experienced a range of emotions, including reactions of shock, vulnerability, responsibility and hopelessness.[70]

Experiences of behaviour and communication

Families described witnessing PHPs exhibiting calm and control in difficult situations, and this included interactions with parents where their adult child had died.[77] In general, family members reported experiencing mainly positive behaviours and communication with PHPs who provided competent care,[77] and in cases involving suicide showed kindness, empathy and compassion.[84] In cases where there was a death of adult children, families reported being treated with dignity by PHPs.[77] There were some reports of relatives experiencing negative interactions with PHPs, where they demonstrated a lack of awareness of family centred practice,[77] insensitivity, or little compassion in cases of suicide.[84]In such instances, families felt further training was needed.

**Experiences, impact and needs of bystanders**

There was a paucity of evidence around experiences and perspectives of bystanders. Papers which discussed bystander experiences, described difficulties associated with cardiac events,[85-88] including identifying OHCAs.[79]   Bystanders reported a lack of knowledge around emergency services, confusion over patient symptoms requiring ambulance response at the time of cardiac events, and differing opinions on actions needed and when to call for an ambulance.[88] While the literature is limited, it appeared that irrespective of whether bystanders were passers-by or present at events, they still experienced on-going adverse reactions. These included social and psychological disturbance (e.g. guilt, self-criticism) following witnessing deaths or giving CPR and automated external defibrillation (AED) at cardiac events.[85-87]  Moller et al described this as ‘the perceptual OHCA experience’ whereby bystanders ruminate ‘on what more could have been done’ (p.S22).[86] Being health-educated was considered to offer some mitigation against these concerns.[85] In the UK, those working in public places and trained to use AEDs for OHCA, also reported negative consequences including flashbacks.[87] There was an identifiable need on the part of bystanders to witness visible resuscitation efforts on the part of emergency services, for feedback following sudden deaths[86] and information on patient outcomes.[85]

**DISCUSSION**

We conducted a scoping review to identify and explore factors that characterise and shape PHP, family, and bystander experience of death and dying in PHC and identify gaps in knowledge that warrant further research. The review identified a developing evidence base on PHPs experiences, particularly in the UK, Europe and North America. However, there were significant shortcomings in the literature in regard to the experiences, needs and impact of death and dying for families and bystanders.

Our review confirmed existing research of the varied and complex work of PHPs,[15] often requiring them to respond to a range of time critical emergencies including cardiac events,[89] placing them in situations that could be difficult to manage and which presented a range of challenges and emotional demands. This was the case for PHPs with variable expertise or length of experience and often required they utilised a variety of coping strategies. While PHPs reported feeling confident to undertake the clinical elements of managing a patient who was dying or who died, they often felt less prepared for handling the more emotional aspects particularly when it involved communicating bad news.

This was also the case for providing palliative and EoLC, which is an increasing part of PHP’s role, particularly in the UK, USA and Canada. In the UK, issues surrounding quality of access to EoLC services and the re-organisation of ambulance services to provide support to patients at the EoL may in part explain this growth in PHC EoLC provision.[90] The multiple challenges that faced PHPs attending EoLC calls often meant having to utilise skills of crisis and conflict management and carry out the emotional support work of death and dying for which they reported minimal preparation or training. This places additional pressures on PHPs, already faced with complex decision making and the complexities of providing care to patients nearing the EoL, and whose actions and handling of these situation influences how people die and whether their preferences are respected. Similarly, for families, given that they may not have experienced death or dying previously, how this work is managed by PHPs is likely to influence the transition to bereavement. In the UK the key role of PHPs in the care of those at the EoL is recognised in policy,[91] and guidance on delivering EoLC[92, 93] and breaking bad news[94] has been developed and is now reflected in their training curriculum and includes preparation for the moral work they will need to engage in as a result of the emotional challenges they are likely to encounter.[95] However, the experiences identified in this review suggest that challenges remain in the application of these recommendations and training in the real world setting of PHC. Therefore, further research is needed to understand if, for example, these challenges are a result of stress resulting from the incident or coping mechanisms, rather than inadequate training.

While the review informed our understanding of PHPs who attended at the scene, we identified little qualitative evidence related to understanding the experience or impact of death and dying on call-handlers. This is despite them being the first point of contact and managing situations involving death and dying as an integral part to their role. The job of a call-handler is stressful and the psychological impact of dealing with emergency calls has been widely documented elsewhere.[96, 97] However, currently we know little about the specific impact of dealing with these aspects on those undertaking this role, the challenges they face, the extent to which these are related to the nature of the role itself or organisational factors, and training and support needs. Given current concerns around the mental health of emergency service workers, and that the need for an evidence base has been highlighted recently by those who support them,[98] this is clearly an omission that merits further investigation.

Papers that included family members’ accounts and experiences were few and tended to focus on their interactions with healthcare professionals, including communication and behaviours during resuscitation and cardiac events[70, 76, 77] EoLC, [61, 68, 83] the impact of cardiac events[70, 77, 88] and occasionally experiences of suicide.[84] Generally, relatives reported positive interactions with PHPs, commenting on their confidence and calmness in attending scenes involving death and dying, and while some families reported more negative encounters, it suggests there may be a disconnect between PHPs perceptions of the care they provide and families experience of that care.From the minority of papers identified on bystanders’ experiences, there appears to be limited support available to those who have experienced stress or other symptoms from their involvement in events such as resuscitation for OHCA, or discussions about what form such support might take. Identifying and developing support mechanisms for this group will become increasingly important with the move towards encouraging bystander CPR and public access defibrillation which are key determinants in OHCA survival prior to PHP arrival.[99]

A paucity of evidence relating to families and bystanders experiences and support needs is an important knowledge gap. There may be several explanations for this limited evidence base. For example, undertaking thanatological research with families and bystanders in the PHC context is likely to present both methodological and ethical challenges perceived by researchers as potential barriers to conducting research in this area. Nevertheless, as both participants in, and observers of, death and dying in the pre-hospital setting, applied research that addresses questions about experiences and impact and subsequently leads to the development of appropriate interventions is essential.

**CONCLUSION**

This review has shown there is a broad consistency regarding the experience of PHPs in relation to dealing with death and dying. It also identified current gaps in knowledge and areas where further empirical research that addresses specific research questions is needed. In particular, the limited evidence on call handlers suggests it is imperative to explore whether their experiences and needs are the same as those PHPs who attend at scene, or if there are differences between the two groups that need to be considered. There is also a need to investigate the effectiveness of current training in order to identify if gaps exist and the translation of this knowledge into practice and how this supports a rapidly evolving service. The paucity of evidence on families and bystanders presents opportunities to investigate their experiences in greater depth so that we can begin to understand their needs and how these can be addressed. Future research to address the current knowledge gaps will be important for informing future policy and practice for managing death and dying in the pre-hospital context.

**CONTRIBUTIONS**

MM, SL and AR designed the review. MA developed the search strategy and performed the searches. SL, ARo, MM and JT screened titles, abstracts and full papers. SL and ARo performed data extraction. MM, SL, ARo carried out data analysis. MM, SL and ARo drafted the manuscript. MM, SL, AR, JT, ARo, MA, RC, HP CD reviewed the paper for important intellectual content. MM, SL, AR, JT, ARo, MA, RC, HP CD approved the final version of the paper.

**FUNDING STATEMENT**

This work was supported by the National Institute for Health Research (NIHR) through the Collaboration for Leadership in Applied Health Research and Care for Wessex (NIHR CLAHRC Wessex) programme. The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

**COMPETING INTERESTS**

AR is a National Institute for Health Research(NIHR) Senior Investigator. HP is in receipt of an NIHR Clinical Doctoral Fellowship.

**PATIENT CONSENT FOR PUBLICATION**

Not required

**PATIENT AND PUBLIC INVOLVEMENT**

This was a scoping review. There was no patient and public involvement at this time.

**DATA SHARING STATEMENT**

No additional data are available

**REFERENCES**

1 Sun J.H. Shing R, Twomey M, Wallis LA. A strategy to implement and support pre-hospital emergency medical systems in developing, resource-constrained areas of South Africa. *Injury* 2014;45:31-38.

2 Hung K Cheung C, Rainer T, Graham C . EMS systems in China. *Resuscitation* 2009;80:732-35. doi: <https://doi.org/10.1016/j.resuscitation.2009.04.016> [published Online First: 13 May 2009].

3 National Audit Office. NHS Ambulance Services: Report to the Comptroller and Auditor General. In: National Audit Office, ed., 2017. <https://www.nao.org.uk/report/nhs-ambulance-services/>

 [Accessed 24 October 2019]

4 Tippett VC, Toloo G, Eeles D, et al. Universal access to ambulance does not increase overall demand for ambulance services in Queensland, Australia. *Aust Health Rev* 2013;37:121-26. doi: <https://doi.org/10.1071/AH12141> [published Online First: 12 December 2012].

5 Troske. S, Davis. A. Ambulance Services for Medicare Beneficiaries: State Differences in Usage, 2012-2014. Rural and Underserved Health Research Centre Publications. 2017. <https://uknowledge.uky.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1000&context=ruhrc_reports> [Accessed 29 November 2019].

6 Al-Shaqsi S. Current challenges in the provision of ambulance services in New Zealand. *Int J Emerg Med* 2010;3:213-17. doi: 10.1007/s12245-010-0239-z [published Online First: 4 November 2010].

7 Health and Social Care Information Centre. Ambulance Services, England 2014-2015, 2015. <https://digital.nhs.uk/data-and-information/publications/statistical/ambulance-services/ambulance-services-england-2014-15> [Accessed 29 November 2019].

8 Meisel ZF, Pines JM, Polsky D, et al. Variations in Ambulance Use in the United States: The Role of Health Insurance. *Acad Emerg Med* 2011;18:1036-44. doi: 10.1111/j.1553-2712.2011.01163.x [published Online First: 1 October 2011].

9 Andrew E, Nehme Z, Cameron P, et al. Drivers of Increasing Emergency Ambulance Demand. *Prehosp Emerg Care* 2019 doi:https://doi.org/10.1080/10903127.2019.1635670 [published Online First: 25 June 2019].

10 Coster JE, Turner JK, Bradbury D, et al. Why Do People Choose Emergency and Urgent Care Services? A Rapid Review Utilizing a Systematic Literature Search and Narrative Synthesis. *Acad Emerg Med* 2017;24:1137-49. doi:[10.1111/acem.13220](https://dx.doi.org/10.1111/acem.13220) [published Online First: 19 June 2017].

11 Lowthian JA, Jolley DJ, Curtis AJ, et al. The challenges of population ageing: accelerating demand for emergency ambulance services by older patients, 1995–2015. *Med J Aust* 2011;194(574-78. doi: 10.5694/j.1326-5377.2011.tb03107.x [published Online First: 23 May 2011].

12 Darnell G, Mason SM, Snooks H. Elderly falls: a national survey of UK ambulance services. *Emerg Med J* 2012;29:1009-10. doi: 10.1136/emermed-2011-200419 [published Online first: 26 March 2012].

13 Zhou Y, Abel G, Warren F, et al. Do difficulties in accessing in-hours primary care predict higher use of out-of-hours GP services? Evidence from an English National Patient Survey. *Emerg Med J* 2015;32:373-78. doi: 10.1136/emermed-2013-203451 [published Online First: 21 May 2014].

14 Togher FJ, O'Cathain A, Phung V-H, et al. Reassurance as a key outcome valued by emergency ambulance service users: a qualitative interview study. *Health Expect* 2015;18:2951-61. doi: 10.1111/hex.12279 [published Online First: 10 October 2014].

15 Wankhade P. Staff perceptions and changing role of pre-hospital profession in the UK ambulance services: An exploratory study. *International Journal of Emergency Services* 2016;5:126-44. doi: <https://doi.org/10.1108/IJES-02-2016-0004> [published Online First: 11 July 2016].

16 Azeli Y, Barberia E, Jiménez-Herrera M, et al. The ReCaPTa study - a prospective out of hospital cardiac arrest registry including multiple sources of surveillance for the study of sudden cardiac death in the Mediterranean area. *Scand J Trauma, Resusc Emerg Med* 2016;24:127 doi.org/10.1186%2Fs13049-016-0309-1 [published Online First: 19 October 2016].

17 Nerla R, Webb I, MacCarthy P. Out-of-hospital cardiac arrest: contemporary management and future perspectives. *Heart* 2015;101:1505-16. doi: <http://dx.doi.org/10.1136/heartjnl-2014-306961> [published Online First: 27 July 2015].

18 Hawkes C. Booth S, Brace-McDonnell SJ, et al. Epidemiology and outcomes from out-of-hospital cardiac arrests in England. *Resuscitation* 2017;110:133-40. <https://doi.org/10.1016/j.resuscitation.2016.10.030> [published Online First: 17 November 2016].

19 Out of Hospital Cardiac Arrest Outcomes Registry. Out of Hospital Cardiac Arrest Outcomes, 2016. <https://warwick.ac.uk/fac/sci/med/research/ctu/trials/ohcao/publications/showcase/57904_ctu_report-final.pdf> [Accessed: 29 November 2019]

20 Hart J, Phillips P. Managing common end-of-life cancer presentations according to the evidence. *Journal of Paramedic Practice* 2019;11:190-96. doi: 10.12968/jpar.2019.11.5.190 [published Online First: 7 May 2019].

21 Waldrop DP, Clemency B, Lindstrom HA, et al . "We Are Strangers Walking Into Their Life-Changing Event": How Prehospital Providers Manage Emergency Calls at the End of Life. *J Pain Symptom Manage* 2015;50: 328-34. doi: <https://doi.org/10.1016/j.jpainsymman.2015.03.001> [published Online First: 28 March 2015]

22 Christopher S. Dealing with death and dying: a paramedic’s perspective. *Ambulance UK* 2005;20(1):9-14.

23 Joint Royal Colleges Ambulance Liasion Committee and Association of Ambulance Chief Executives. JRCALC Clinical Guidlelines. Bridgewater: Class Professional Publishing: 2019.

24 Douglas L, Cheskes S, Feldman M, et al. Death notification education for paramedics: Past, present, and future directions. *Journal of Paramedic Practice* 2013;5(3):152-59. doi: <https://doi.org/10.12968/jpar.2013.5.3.152> [published Online First: 16 August 2013]

25 Douglas L, Cheskes S, Feldman M, et al. Paramedics' experiences with death notification: a qualitative study. *Journal of Paramedic Practice* 2012;4(9):533-39. [published Online First: 16 August 2013].

26 Steen E, Næss AC, Steen PA. Paramedics organizational culture and their care for relatives of cardiac arrest victims. *Resuscitation* 1997;34:57-63. doi: [https://doi.org/10.1016/S0300-9572(96)01045-3](https://doi.org/10.1016/S0300-9572%2896%2901045-3) [published Online First: 3 December 1997].

27 Bailey C, Murphy R, Porock D. Professional tears: developing emotional intelligence around death and dying inemergency work. *J Clin Nurs*. 2011;20:3364–72.

28 Peterson JL, Johnson MA, Halvorsen B, et al. What is it so stressful about caring for a dying patient? A qualitative study of nurses’ experiences*. Int J Pall Med* 2013;16(4):181-87.

29 Ostlere L I am a paramedic working in the coronavirus crisis – some patients have left it too late to call’. *The Independent*, 4 May 2020. <https://www.independent.co.uk/life-style/health-and-families/paramedic-nhs-ppe-coronavirus-covid-19-a9493456.html>

30. Townsend R, Eburn M. COVID-19 – legal and ethical implications for your practice. *Australisain J. Paramedicine.* 2020, 17.

31 Healthcare Resilience Task Force Behavioral Health Work Group. Managing Patient and Family Distress Associated with COVID-19 in the Prehospital Care Setting. American College of Emergency Physicians. 2020. <https://www.acep.org/corona/covid-19-field-guide/personalwell-being-and-resilience/managing-patient-and-family-distress-associated-with-covid-19-in-the-prehospital-care-setting/>

32 Jameton A. Nursing practice: the ethical issues. Englewood Cliffs: Prentice Hall; 1984.

33 Campbell SM, Ulrich CM, Grady C. (2018) A Broader Understanding of Moral Distress. In: Ulrich C., Grady C. (eds) Moral Distress in the Health Professions. Springer, Cham <https://doi.org/10.1007/978-3-319-64626-8_4> [published Online First: 2 February 2018].

34 Hobgood C Woodyard DJ, et al . Death in the field: Teaching paramedics to deliver effective death notifications using the educational intervention “GRIEV\_ING”. *Prehosp Emerg Care* 2013;17:501-10. doi: <https://doi.org/10.3109/10903127.2013.804135> [published Online First: 27 June 2013].

35 Tricco A.C. Erin L. Zarin W, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med* 2018;169: 467-73. <https://doi.org/10.7326/M18-0850> [published Online First: 4 September 2018].

36 Pham MT, Rajic A, Greig JD, et al. A scoping review of scoping reviews: advancing the approach and enhancing the consistency. *Res Synth Methods* 2014;5(4):371-85. doi: <https://doi.org/10.1002/jrsm.1123> [published Online First: 24 July 2014].

37 Davis K, Drey N, Gould D. What are scoping studies? A review of the nursing literature. *Int J Nurs Stud* 2009;46:1386-40. doi: <https://doi.org/10.1016/j.ijnurstu.2009.02.010> [published Online First: 27 March 2009].

38 Arksey H, O’Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005;8:19-32.

39 Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci* 2010;5 doi:10.1186/1748-5908-5-69 [published Online First: 20 September 2010].

40 Critical Appraisal Skills Programme. CASP Quality Assessment Tool- qualitative checklist online., 2018. <https://casp-uk.net/> [Accessed 6 January 2020].

41 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77-101. doi: 10.1191/1478088706qp063oa [published Online First: 21 July 2008].

42 Clompus SR, Albarran JW. Exploring the nature of resilience in paramedic practice: A psycho-social study. *Int Emerg Nurs* 2016;28:1-7. doi: <https://doi.org/10.1016/j.ienj.2015.11.006> [published Online First: 17 December 2015].

43 Kirk A, Crompton PW, Knighting K, et al. Paramedics and their role in end-of-life care: perceptions and confidence. *Journal of Paramedic Practice* 2017;9(2):71-79. doi: 10.12968/jpar.2017.9.2.71 [published Online First: 10 February 2017].

44 Davey P, Lees A, Godbold R. Exploring New Zealand paramedic attitudes towards advance directives: An ethical analysis. *Australasian Journal of Paramedicine* 2016;13: <http://dx.doi.org/10.33151/ajp.13.4.241>

45 Hochschild AR. The Managed Heart: The Commercialization of Human Feeling. Second ed. CA: University of California Press 2012.

46 Nilsson C, Bremer A, Blomberg K, et al. Responsibility and compassion in prehospital support to survivors of suicide victim - Professionals' experiences. *Int Emerg Nurs* 2017;35:37-42. <https://doi.org/10.1016/j.ienj.2017.06.004> [published Online First: 4 July 2017].

47 Williams A. A study of emotion work in student paramedic practice. *Nurse Educ Today* 2013;5:512-7. <https://doi.org/10.1016/j.nedt.2012.03.003> [published Online First: 3 April 2012].

48 Regehr C, Goldberg G, Hughes J. Exposure to human tragedy, empathy, and trauma in ambulance paramedics. *Am J Orthopsychiatry* 2002;72(4):505-13. doi: http://dx.doi.org/10.1037/0002-9432.72.4.505

49 Dow DM. Exploring Stress in EMS: A Challenge, Occupational Hazard, and Barrier: A Qualitative Study [Ph.D.]. Cardinal Stritch University, 2018.

50 Halpern J, Gurevich M, Schwartz B, et al. What makes an incident critical for ambulance workers? Emotional outcomes and implications for intervention. *Work & Stress* 2009;23(2):173-89. doi: <https://doi.org/10.1080/02678370903057317> [published Online First: 22 July 2009].

51 Halpern J, Gurevich M, Schwartz B, et al. Interventions for critical incident stress in emergency medical services: a qualitative study. *Stress Health* 2009;25(2):139-49. doi: 10.1002/smi.1230 [published Online First: 8 October 2008].

52 Gallagher S, McGilloway S. Living in critical times: The impact of critical incidents on frontline ambulance personnel--a qualitative perspective. *Int J Emerg Ment Health and Human Resilience* 2008;9(3):215-24.

53 Wines M. Multifaceted traumatization: Direct and vicarious exposure of EMS personnel who responded to a suicide where loved ones of the deceased were present [Ph.D.]. Duquesne University, 2016.

54 Rant B, Bregar B. Understanding the attitudes of paramedics towards suicidal patients. *Obzornik Zdravstvene Nege* 2014;48:177-94. doi: https://doi.org/10.14528/snr.2014.48.3.24

55 Fernandez-Aedo I, Perez-Urdiales I, Unanue-Arza S, et al. A qualitative study about experiences and emotions of emergency medical technicians and out-of-hospital emergency nurses after performing cardiopulmonary resuscitation resulting in death. *Enferm Intensiva* 2017(28):57-63. doi: https://doi.org/10.1016/j.enfie.2016.10.001

56 Munday D, Clerici J, Karasouli E, et al. Experiences of paramedics in managing patients with advanced chronic obstructive pulmonary disease (COPD) and advanced cancer. *Palliat Med* 2014;28(6):717-18.

57 Donnelly C, Yancey A, Johnson K, et al. Emergency medical services providers' knowledge, attitudes, and experiences responding to patients with end-of-life emergencies. *J Pain Symptom Manage* 2015;49:421.

58 Lord B, Recoche K, O’Connor M, et al. Paramedics’ perceptions of Their Role in Palliative Care: Analysis of Focus Group Transcripts. *J Palliat Care* 2012;21:987-91. [https://doi.org/10.1177%2F082585971202800106](https://doi.org/10.1177/082585971202800106) [published Online First: 19 December 2018].

59 Waldrop DP, McGinley JM, Clemency B. The Nexus Between the Documentation of End-of-Life Wishes and Awareness of Dying: A Model for Research, Education and Care. *J Pain Symptom Manage* 2018;522-29. doi: <http://dx.doi.org/10.1016/j.jpainsymman.2017.09.010> [published Online First: 15 September 2017].

60 Waldrop DP, McGinley JM, Dailey MW, et al. Decision-Making in the Moments Before Death: Challenges in Prehospital Care. *Prehosp Emerg Care* 2018;23(3):356-63. doi: <https://dx.doi.org/10.1080/10903127.2018.1518504> [published Online First: 11 October 2018]

61 Hoare S, Kelly MP, Prothero L, et al. Ambulance staff and end-of-life hospital admissions: A qualitative interview study. *Palliat Med* 2018;32:1465-73. doi: [https://doi.org/10.1177%2F0269216318779238](https://doi.org/10.1177/0269216318779238) [published Online First: 11 June 2018]

62 Murphy-Jones G, Timmons S, Paramedics' experiences of end-of-life care decision making with regard to nursing home residents: an exploration of influential issues and factors. *Emerg Med J* 2016;33(10):722-6. doi: <http://dx.doi.org/10.1136/emermed-2015-205405> [published Online First: 17 May 2016].

63 Wilson DM, Birch S. Moving from place to place in the last year of life: A qualitative study identifying care setting transition issues and solutions in ontario. *Health Soc Care Community* 2018;26:232-39. doi: <http://dx.doi.org/10.1111/hsc.12513> [published Online First: 6 November 2017]

64 Brighton LJ, Selman LE, Bristowe K, et al. Emotional labour in palliative and end-of-life care communication: A qualitative study with generalist palliative care providers. *Patient Educ Couns* 2019;102:494-502. doi: <https://dx.doi.org/10.1016/j.pec.2018.10.013> [published Online First: 17 October 2018].

65 Robinson L, Dickinson C, Bamford C, et al. A qualitative study: Professionals' experiences of advance care planning in dementia and palliative care, 'a good idea in theory but'. *Palliat Med* 2013;27:401-08. doi: <http://dx.doi.org/10.1177/0269216312465651> [published Online First: 21 November 2012].

66 Waldrop D, McGinley J. Emergency end of life calls in long term care: through the lens of pre-hospital providers. *Gerontologist* 2016;56:56-56.

67 Anderson NE, Gott M, Slark J. Beyond prognostication: ambulance personnel's lived experiences of cardiac arrest decision-making. *Emerg Med J* 2018;35:208-13. <http://dx.doi.org/10.1136/emermed-2017-206743> [published Online First: 20 March 2018]

68 Ortega-Galan AM Ruiz-Fernandez MD, Ortiz-Amo R, et al. Care received at the end of life in emergency service from the perspectives of caregivers: a qualitative study. *Enferm Clin* 2019;29(1):10-17. doi: <https://doi.org/10.1016/j.enfcle.2018.09.004>

69 Mainds MD, Jones C. Breaking bad news and managing family during an out-of-hospital cardiac arrest. *Journal of Paramedic Practice* 2018;10:292-99. doi: 10.12968/jpar.2018.10.7.292 [published Online First: July 2018].

70 Bremer A. Dahlberg K, & Sandman L. Experiencing Out-of-Hospital Cardiac Arrest: Significant Others’ Lifeworld Perspective. *Qualitative Health Research* 2009;19:1407–20. doi: 10.1177/1049732309348369

71 Bremer A, Dahlberg K, Sandman L. Balancing between closeness and distance: emergency medical services personnel's experiences of caring for families at out-of-hospital cardiac arrest and sudden death. *Prehosp Disaster Med* 2012;27:42-52. doi: <https://doi.org/10.1017/S1049023X12000167> [published Online First: 20 March 2012].

72 Walker WM Emergency care staff experiences of lay presence during adult cardiopulmonary resuscitation: a phenomenological study. *Emerg Med J* 2014;31:453-58. <http://dx.doi.org/10.1136/emermed-2012-201984> [published Online First: 16 May 2014]

73 Moffat S, Fritz Z, Slowther AM, et al. 'Do not attempt CPR' in the community: the experience of ambulance clinicians. *Journal of Paramedic Practice* 2019;11(5):198-204. doi: 10.12968/jpar.2019.11.5.198

74 Andrus SMC. New Jersey volunteer emergency medical technicians (EMTs) out of hospital do not resuscitate orders (OOHDNRs), cardiopulmonary resuscitation (CPR), and living wills: A moral conflict [D.M.H.]. Drew University, 2007.

75 Armitage E, Jones C. Paramedic attitudes towards DNACPR orders. *Journal of Paramedic Practice* 2017;9:445-52. doi: 10.12968/jpar.2017.9.10.445

76 Masquelier E, Vandecasteele T, Verhaeghe S. Family presence during resuscitation: Perspective of family members and emergency care providers. *Resuscitation* 2015;96(SUPPL. 1):31. doi: http://dx.doi.org/10.1016/j.resuscitation.2015.09.072

77 Fallat ME, Barbee AP, Forest R, et al. Perceptions by Families of Emergency Medical Service Interventions During Imminent Pediatric Out-of-Hospital Death. *Prehosp Emerg Care* 2019;23:241-48. doi: <https://dx.doi.org/10.1080/10903127.2018.1495283> [published Online First: 17 August 2018].

78 Muller T, van der Giessen M. "If he dies, I’ll kill you”. Violence, paramedics and impression management. In: Muller T, ed. Contributions from European Symbolic Interactionists: Conflict and Cooperation. Bingley: Emerald Group Publishing Ltd 2015:177-93.

79 Rogers I, Shearer F, Rogers J, et al. Paramedics' perceptions and educational needs with respect to palliative care. *Emerg Med Australas* 2015; 12(5) Article 3 doi: <http://dx.doi.org/10.33151/ajp.12.5.218>

80 Jensen JL, Travers AH, Marshall EG, et al. Insights into the implementation and operation of a novel paramedic long-term care program. *Prehosp Emerg Care* 2014;18:86-91. doi: <https://doi.org/10.3109/10903127.2013.831506> [published Online First: 11 October 2013].

81 Jonsson A, Segensten K. The meaning of traumatic events as described by nurses in ambulance service. *Accid Emerg Nurs* 2003;11:141-52. doi: [https://doi.org/10.1016/S0965-2302(02)00217-5](https://doi.org/10.1016/S0965-2302%2802%2900217-5) [published Online First: 25 February 2003].

82 Jonsson A, Segensten K. Guilt, shame and need for a container: a study of post-traumatic stress among ambulance personnel. *Accid Emerg Nurs* 2004;12(4):215-23. doi: <https://doi.org/10.1016/j.aaen.2004.05.001> [published Online First: 23 June 2004].

83 Carter AJE. Arab M, Harrison M., et al. Paramedics providing palliative care at home: A mixed methods exploration of patient and family satisfaction and paramedic comfort and confidence. *CJEM* 2019;21:513-22. doi: <https://doi.org/10.1017/cem.2018.497> [published Online First: 11 February 2019].

84 Peters K. Cunnigham C, Murphy G, et al. Helpful and unhelpful responses after suicide: Experiences of bereaved family members. *Int J Ment Health Nurs* 2016;25:418-25. doi: <https://doi.org/10.1111/inm.12224> [published Online First: 1 April 2016].

85 Mathiesen WT, Bjorshol CA, Braut G.S, et al. Reactions and coping strategies in lay rescuers who have provided CPR to out-ofhospital cardiac arrest victims: a qualitative study. *BMJ Open* 2016;6:e010671. doi: doi:10.1136/bmjopen-2015-010671

86 Møller T.P. FMC, Hansen CM et al. Feedback to bystanders after performing CPR in out of hospital cardiac arrest (OHCA). *Resuscitation* 2013;84S:S21. doi: <https://doi.org/10.1016/j.resuscitation.2013.08.067> [published Online First: 25 May 2016].

87 Timmons S. Crosbie B, Harrison-Paul R. Displacement of death in public space by lay people using the automated external defibrillator. *Health Place* 2010;16:365-70. <https://doi.org/10.1016/j.healthplace.2009.11.008> [published Online First: 24 November 2009].

88 Ruston A. Accessing emergency care at the time of a heart attack: why people do not dial 999 for an ambulance. *J R Soc Promot Health* 2001;121(4):243-7. doi [https://doi.org/10.1177%2F146642400112100408](https://doi.org/10.1177/146642400112100408) [published Online First: 1 December 2001].

89 Outcomes Registry Team. Out of Hospital Cardiac Arrest Outcomes (OHCAO) Registry, review of the first 5 years and forward strategy, 2018. <https://warwick.ac.uk/fac/sci/med/research/ctu/trials/ohcao/publications/showcase/57904_ctu_report-final.pdf> [Accessed 29 November 2019].

90 University of Sheffield Medical Research Centre . Building the evidence base in pre-hospital urgent and emergency care: a review of research evidence and priorities for future research, 2010. <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/216064/dh_117198.pdf> [Accessed 29 November 2019].

91 Department of Health. End of Life Care Strategy: Promoting high quality care for adults at the end of their life. London, 2008. <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/136431/End_of_life_strategy.pdf> [Accessed 29 November 2019].

92 National End of Life Care Programme. The route to success in end of life care - achieving quality in the ambulance services, 2012. <https://www.england.nhs.uk/improvement-hub/wp-content/uploads/sites/44/2017/11/End-of-Life-Care-Route-to-Success-ambulance-services.pdf> [Accessed 29 November 2019].

93 Public Health England. National end of Life Care intelligence network: ambulance data project for end of life care. In: DH, ed. London, 2015. [https://webarchive.nationalarchives.gov.uk/20190501131854/http://www.endoflifecare-intelligence.org.uk/resources/publications/ambulance](https://webarchive.nationalarchives.gov.uk/20190501131854/http%3A//www.endoflifecare-intelligence.org.uk/resources/publications/ambulance) [Accessed 29 November 2019]

94 Dom T. Breaking Bad News. Clinical Update. London: London Ambulance Services NHS Trust, June 2011. <https://www.londonambulance.nhs.uk/health-professionals/hcp-information/documents-and-guidelines/> [Accessed 29 November 2019]

95 College of Paramedics. Paramedic Curriculum Guidance. Fifth Edition .2019 <https://www.collegeofparamedics.co.uk/publications/professional-standards> [Accessed 29 November 2019].

96 Golding SE, Horsfield C, Davies A, et al. Exploring the psychological health of emergency dispatch centre operatives: a systematic review and narrative synthesis. *Peer J* 2017;5:e3735. doi: 10.7717/peerj.3735 [published Online First: 10 October 2017].

97 Adams K, Shakespeare-Finch J, Armstorng D. An interpretative phenomenological analysis of stress and well-being in emergency medical dispatchers. *J Loss Trauma* 2015;20:430-48. doi: doi: 10.1080/15325024.2014.949141 [published Online First: 20 November 2014].

98 Mind. Blue Light Programme - Phase Three New Audience Scoping: 999 Call Handlers Final Report 2016:1-33. <https://www.mind.org.uk/media/24690335/blue-light-programme_999-call-handler-scoping-report.pdf> [Accessed 29 November 2019].

99 Holmberg MJ, Vognsen M, Andersen MS, et al. Bystander automated external defibrillator use and clinical outcomes after out-of-hospital cardiac arrest: A systematic review and meta-analysis. *Resuscitation* 2017;120:77-87. doi: <https://doi.org/10.1016/j.resuscitation.2017.09.003> [published Online First: 6 September 2017].

Figure Captions

Figure 1: Search Strategy

Figure 2: PRISMA- ScR Flow Diagram

1. [↑](#footnote-ref-1)