

BMJ Open Ethical issues in termination of resuscitation decision-making: an interview study with paramedics and relatives of out-of-hospital cardiac arrest non-survivors

Karin Eli , Caroline J. Huxley, Galina Gardiner, Gavin D. Perkins, Michael A. Smyth , Frances Griffiths , Anne-Marie Slowther 

To cite: Eli K, Huxley CJ, Gardiner G, *et al.* Ethical issues in termination of resuscitation decision-making: an interview study with paramedics and relatives of out-of-hospital cardiac arrest non-survivors. *BMJ Open* 2024;**14**:e085132. doi:10.1136/bmjopen-2024-085132

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<https://doi.org/10.1136/bmjopen-2024-085132>).

Received 06 February 2024
Accepted 28 August 2024



© Author(s) (or their employer(s)) 2024. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

Warwick Medical School,
University of Warwick, Coventry,
UK

Correspondence to

Dr Karin Eli;
Karin.Eli@warwick.ac.uk and
Professor Anne-Marie Slowther;
A-M.Slowther@warwick.ac.uk

ABSTRACT

Background In out-of-hospital cardiac arrest (OHCA), decisions to terminate resuscitation or transport the patient to hospital are ethically fraught. However, little is known about paramedics' ethical concerns in these decision-making processes.

Objective To develop an understanding of how paramedics experience ethical concerns in OHCA decision-making processes, and how this relates to the ethical concerns of patients' relatives.

Design A qualitative study using semi-structured interviews with paramedics and relatives of OHCA non-survivors.

Setting Two ambulance trusts in England.

Participants Thirty-one paramedics, identified as decision-makers in adult OHCA events in which cardiopulmonary resuscitation (CPR) had been initiated, were interviewed. Fourteen interviews with relatives of OHCA non-survivors were also conducted.

Analysis The interviews were analysed thematically, using a coding framework and following an empirical ethics approach.

Results Four themes were developed: preventing harm to patients, best interests, caring for the patient's family and moral distress. Paramedics conceptualised preventing harm both as saving lives and as preventing an undignified death or a life with severe brain damage. Paramedics' and relatives' views of best interests were influenced by values such as patient dignity and assumptions about age and quality of life. Paramedics expressed a duty of care towards the patient's family. Relatives conveyed the importance of clear communication and acts of care performed by the ambulance crew, underscoring the ethical commitment that paramedics had towards patients' families. Paramedics described decision-making processes that relied on clinical guidelines, rather than personal values and beliefs; this sometimes led to moral distress.

Conclusion Non-protocolised ethical considerations are important in paramedic decision-making about terminating CPR in OHCA events. While paramedics use established guidelines and processes to reach decisions that prevent patient harm, they experience moral distress

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Through including both paramedics and relatives, the study attended to the perspectives of the immediate stakeholders in an out-of-hospital cardiac arrest (OHCA) event, developing a more comprehensive account of the ethical concerns involved.
- ⇒ As the interviews focused on practices, experiences and reflections related to specific cardiac arrest cases, this provided a robust empirical basis for the analysis.
- ⇒ The study was limited by the fact that no OHCA survivors volunteered to participate, despite the study team's attempts to recruit survivors.
- ⇒ Because some of the paramedic participants attended cardiac arrest events very frequently, a few could not remember the event for which they had been recruited; they therefore discussed another recent event, potentially biasing discussion towards events featuring memorable elements.
- ⇒ Although the study team attempted to recruit clinicians and relatives associated with the same cases, this proved to be challenging, and thus it was impossible to triangulate relatives' and paramedics' experiences.

when personal convictions clash with guidelines. Training around ethical reasoning and decision making may help paramedics reduce their moral distress and provide consistent and transparent decisions for patients and their families.

INTRODUCTION

In out-of-hospital cardiac arrest (OHCA), the decision to terminate resuscitation at the scene or transport the patient to hospital is ethically fraught, yet little is known about how paramedics recognise, articulate and respond to ethical concerns in the decision-making process. Ethical decision-making is difficult to protocolise. While the current guidelines

for paramedics in the UK specify that decisions on cardiopulmonary resuscitation (CPR) should be made with the patient's best interests in mind and with reference to the Mental Capacity Act (2005),^{1,2} this guidance is left vague, by necessity. Where unsure, paramedics are instructed to consult with a senior decision maker, who must also interpret the guidance as written.² Best interests, as laid out in the Mental Capacity Act, call for a consideration of what the patient would have wanted in the situation, what is the likely outcome given a particular intervention, and whether this aligns with the patient's previously expressed wishes.¹ In the context of OHCA, interpretations and enactments of best interests are complicated by the high-stress environment and the pressure to make quick decisions, often without a complete medical history and diagnostic information.^{3,4} Moreover, the literature has identified the presence of bystanders, particularly the patient's family, as pivotal in paramedics' decision-making regarding OHCA, highlighting how interactional and emotional dynamics may affect paramedics' decisions.⁴⁻⁷

In this article, we focus on paramedics' narratives of OHCA events they attended, in which CPR was initiated, to understand how paramedics experience the ethical tensions in their decision-making processes, and how these ethical tensions affect decision-making in practice. This analysis is triangulated with data from interviews with relatives of patients who died following an OHCA, for an understanding of how the dynamics of ethical concerns between both groups of stakeholders—paramedics and relatives—affect decision-making around the termination or continuation of CPR.

METHODS

Recruitment and data collection

This qualitative study is part of a larger study aimed at understanding and improving decisions in OHCA.⁸ Two ambulance trusts in England recruited paramedics identified as the main decision-makers in adult cardiac arrest events in which CPR had been initiated. Paramedics who were interested in participating contacted the study team and were sent an information sheet and consent form. Those who agreed to participate took part in a remote interview (by telephone or on Microsoft Teams). Interviews were semi-structured and conducted by one of three researchers (a research psychologist, a medical anthropologist and a health sciences researcher). Topic guides were developed by the study team, and included questions focused on the cardiac arrest event for which the participant had been recruited, followed by questions about their experiences of OHCA more generally. Interviews ended with a series of five vignettes, presenting fictional OHCA scenarios. The vignettes were developed by the study team, headed by MAS, a senior paramedic, and were designed to encourage discussion on potentially key considerations in OHCA decision-making, including the patient's age, comorbidities, clinical presentation, the provision of bystander CPR, response to treatment,

duration of resuscitation and distance to hospital. Participants were asked how they would approach decision-making in each scenario, allowing us to flesh out similar ethical issues across interviews.

Ambulance trusts also sent recruitment letters to adult cardiac arrest survivors or the relatives of non-survivors, at least three months after the event. Those interested in participating contacted the study team, who provided additional explanations of the study and sent them the participant information sheet and consent form. Participants could choose to be interviewed in person or by telephone. Interviews were semi-structured and were conducted by one of three researchers (a research nurse, a research paramedic and a research psychologist). Topic guides focused on participants' experiences of the cardiac arrest event, their feelings following the event and their reflections on the actions that were taken or not taken by the clinical staff involved.

Analysis

Interviews were analysed thematically, using an empirical ethics approach.^{9,10} In the first stage, 20 interviews from the wider study sample (including interviews with paramedics, relatives and emergency department staff) were assigned using a random sequence generator¹¹; the analysis team included A-MS (a GP/medical ethicist), FG (a GP/medical sociologist), GG (a research psychologist), CH (a research psychologist) and KE (a medical anthropologist). Team members coded the interviews for explicit and implicit ethical issues. The lists of codes were compiled into a longlist, which was discussed in a team meeting. Following this discussion, a draft coding framework was developed by KE and reviewed by the team¹² and a decision was made to include only the paramedic and relative interviews in the analytic process. While parallels were observed between the paramedic and the emergency department staff interviews with regard to ethical issues such as caring for the patient's family and acting in the patient's best interests, because the emergency department staff interviews focused on decision-making after patients had been transported to hospital, we found they were less relevant to the research question at hand. Once the coding framework had been agreed, KE and A-MS coded the transcripts, with KE coding all transcripts and A-MS inter-coding a randomly selected subsample. Throughout the coding process, KE and A-MS consulted regularly to refine the coding framework (available as online supplemental material).

Patient and public involvement

This study was conducted as part of the wider PROTECTeD Study, which was supported by patient and public involvement (PPI) representatives. PPI representatives commented on the study design, providing advice on recruitment and interview topics. PPI representatives also took part in a stakeholder meeting in which study findings were presented, provided feedback on these findings, and, alongside clinicians, participated in small

group discussions which focused on ethical concerns surrounding decision-making in OHCA events.

FINDINGS

Descriptive findings

Thirty-one paramedic and 14 relative interviews were conducted (one relative interview included two participants); the sample numbers met established criteria for data saturation in thematic analysis.¹³ Paramedic interviews took place between March and July 2022. Participants described 32 cardiac arrest cases (one paramedic described two cases); CPR was terminated in 17 cases. Relative interviews took place between August 2022 and August 2023. In the relative interviews, CPR was terminated in 10 cases. The paramedic interviews lasted between 28 and 96 min (median=62 min); the relative interviews lasted between 28 and 72 min (median=43 min). Most interviews were conducted remotely: 27 paramedic interviews were conducted over Microsoft Teams and four by telephone; 13 relative interviews were conducted by telephone and one was conducted in person. While research in qualitative methods has found that in-person interviews may produce more detailed data than remote interviews, we are reassured that the data collected for this study are of high quality, given the metrics of interview length, researcher experiences of the interviews and the richness of the resulting analysis.¹⁴ Moreover, as Krouwel *et al* have found in a comparative analysis of in-person and video call interviews, although in-person interviews may produce more detailed data, both types of interview generate an equivalent breadth of codes.¹⁵

Thematic findings

Four themes were developed through the analysis process: preventing harm to patients, acting in the patient's best interests, caring for the patient's family, and moral distress. Themes are summarised in [table 1](#).

Preventing harm to patients

As part of preventing harm, paramedics cited saving lives as a guiding principle which shaped the actions they took when reaching the scene of a cardiac arrest.

As one paramedic explained, 'I like to give everyone a chance. (...) To me it doesn't matter how futile, if there's any chance at all then you should be kind of, you know, you should do something' (Paramedic 26). However, as conceptualised by paramedics, harm also extended to severe hypoxic brain damage, or suffering an undignified death if CPR was continued despite there being no chance of survival:

[when] we know that there is a very good chance that, one, we're probably not going to have a successful outcome, but two, if we do they're probably going to have very poor neurological sort of output after the event because they have been hypoxic for a long time. So just sort of asking the question, 'Is it in this patient's interest to have this resuscitation attempt?'. (Paramedic 3)

I don't think it's dignified to start on somebody who's, you know, skin and bones in a bed and is quite clearly not going to survive the resuscitation process. So for me I wouldn't start, yeah, based on that as well. (Paramedic 15)

As such, preventing harm to patients also entailed terminating CPR. As this paramedic explained, when describing a team decision to terminate CPR: 'particularly with, with his past medical history his chances were low to, to zero so it would have been putting the family and him through something that was completely unnecessary' (Paramedic 9).

Best interests

While few paramedics directly used the term 'best interests' when describing their decision-making, their narratives nonetheless exemplified best interests decision-making in action. When faced with a prolonged resuscitation attempt without return of spontaneous circulation (ROSC), paramedics asked themselves and their team 'what next?'. In nearly all cases, the answer to this question depended on what was best for the patient. First, they assessed the likelihood of a physiological response to treatment, for example, whether or not there was a 'shockable' rhythm, the presence of a reversible/treatable

Theme	Content
Preventing harm to patients	<ul style="list-style-type: none"> ▶ Saving lives as a guiding principle ▶ Conceptualising harm to include severe hypoxic brain damage or an undignified death
Best interests	<ul style="list-style-type: none"> ▶ Assessing the patient's ability to benefit ▶ Considering non-clinical factors, such as age and quality of life ▶ Considering the patient's previously expressed wishes
Caring for the patient's family	<ul style="list-style-type: none"> ▶ Communicating clearly with the patient's family and involving them in decisions ▶ Caring for the patient's family's emotional well-being ▶ Prioritising the patient's best interests over the family's wishes
Moral distress	<ul style="list-style-type: none"> ▶ Performing resuscitation-related interventions to follow the guidelines, despite feeling it would be futile and/or undignified ▶ Asserting the importance of guidelines despite the risk of moral distress

cause for the cardiac arrest, length of time before CPR was commenced and (lack of) response to treatment so far. For example, a paramedic spoke about making the decision to terminate CPR in a patient in their 50s, after an hour of resuscitation, with the patient having pulseless electrical activity (PEA). This decision-making process, the paramedic explained, involved a telephone discussion with a more senior clinician, which followed this script:

we kind of go through the reversible causes and if we have done everything we can to reverse everything that can be pre-hospitally and what we're suspecting is the cause of the cardiac arrest at that point. Once that's discussed we look at how the patient has responded to the, the resuscitation attempts throughout and any rhythm changes and whether it is an adrenaline induced rhythm change that isn't sustainable or whether it is kind of a sustainable rhythm, and we just need to continue. (Paramedic 5)

Then, paramedics assessed the patient's physiological reserve and therefore ability to tolerate and recover from continued treatment. This was informed by evidence about the patient's previous health status, including presence and severity of other illnesses. Speaking of a hypothetical scenario where an oxygen-dependent patient had a PEA rhythm, this paramedic explained they would decide to terminate resuscitation based on the patient's comorbidities, which made her unlikely to survive:

long-term COPD, she's on 16 hours of oxygen a day, her mobility is not good, I think life expectancy is not good. So yeah, I think a resus would be a waste of time basically because the outcome's not going to be good. (Paramedic 23)

While factors such as reversibility and physiological reserve may seem to be straightforward, the participants' accounts revealed greater complexity. Paramedics' considerations of clinical factors were woven with considerations of non-clinical factors—most notably, the relevance of age. While some paramedics expressed discomfort with using age as a factor in decision-making, most said they considered age as a predictor of outcome, associating younger age with greater physiological reserve and reversibility and older age with greater futility, even in the presence of good baseline function:

We get sent to 90-year-olds, 94-year-olds all the time, and it's like, fine, they might actually have a good quality of life at that time, but we all know the chances of survival and surviving an out-of-hospital cardiac arrest is like eight percent (...) a 94-year-old is not gonna be making that, you know? And if they are they're certainly not gonna be their same self. (Paramedic 31)

Some paramedics spoke of the patient's age in relation to understandings of years left to live and when death becomes acceptable. Speaking about a hypothetical

scenario in which a 17-year-old patient was in asystole and cold to the touch, a paramedic said:

She, she's 17. She's, she's going to hospital. She's receiving absolutely everything that she can. The amount of life that could be saved from doing something like this is massive (...) There's a lot less consideration towards, 'Oh, is this, is the right kind of death? Is this the, is, is this how someone would want to pass away?' I don't think that counts in this case. (Paramedic 10)

Considerations of age were often intertwined with other non-clinical factors, such as the paramedics' emotional response and the expected impact that a patient's death would have on their family—with a young patient's death considered more traumatic, as described by a paramedic who decided to transport a patient in her 40s, despite her being in asystole:

I had already started compressions at this point 'cause we had already confirmed cardiac arrest and we were discussing kind of, 'Is it right to continue or should we stop?' At this point I made the decision that we were going to continue because the patient was still quite warm. She was quite young, there were children involved, lots of emotions going around. The husband had started CPR on his own. So, yeah, at that point I decided, 'No, we're going to, we're going to run, we're going to run with this'. (Paramedic 25)

Similarly, the notion of 'quality of life' was used by some participants to inform assessment of the patient's ability to benefit from continued resuscitation. Judgements on quality of life were based on the independence of the patient prior to cardiac arrest and the presence of other illnesses and their treatment burdens. Quality of life and age were often linked in the judgement of whether the patient was likely to benefit from resuscitation. As this paramedic said, 'if you got someone who's 86 and bedbound and they've got no quality of life, after 20 minutes you're not gonna carry on, because the chances are quite slim' (Paramedic 8). While this paramedic cited low chance of survival as a reason to terminate CPR, they also revealed that a value judgement about quality of life and age impacted on their decision. As such, it was not always clear which factors predominated in paramedics' expressed judgements. For relatives, a key concern was assumed quality of life if the patient survived the arrest. Several spoke about the undesirability of survival with neurological disabilities, saying the patient would not have wanted to live with such severe deficits. For example, speaking about her husband, a participant said: 'He wouldn't've wanted a life that was very seriously compromised' (Relative 12). Another participant spoke more generally, saying, 'it's all well and good, you know, talking about, you know, saving peoples' lives, etcetera, etcetera, and you've just got to think about the quality of life that they end up with as a consequence' (Relative 2).

Many paramedics also considered the patient's previously expressed wishes. Some described checking for the presence of a Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) or Recommended Summary Plan for Emergency Care and Treatment (ReSPECT) form when arriving at the scene of a cardiac arrest as standard practice, particularly if the patient was old, had a terminal condition or had severe comorbidities. Paramedics said they followed the guidance on the form, unless the form was poorly completed, or the recommendations seemed irrelevant to the situation:

If there's a signed ReSPECT form and the arrest falls within the remit of that ReSPECT form then we respect the patient's wishes. We have to act in their best interest and if that has already been predetermined then we have to respect that. My instinct as a human is to continue, but we have to respect the wishes of the patient. (Paramedic 9)

For paramedics, interactions with patients' relatives were key to understanding the patients' previously expressed wishes, and some relative participants also mentioned the importance of following patients' wishes. This, however, was not always straightforward for them. One participant described feeling guilty over forgetting that her husband had a DNACPR in place, and therefore starting CPR. Another said she started CPR because she thought her husband's collapse may have followed a reversible cause, reflecting that she would have acted differently had she known he was dying, as her husband had previously told her: "If, if it doesn't work, don't bring me back" (Relative 13).

As this section shows, best interests decision-making for paramedics was complex and iterative, involving consideration of multiple concurrent factors, shaped by judgements around quality of life, often with limited information and in the context of a changing clinical situation. Within this dynamic decision-making process, paramedics had the sensitive task of correctly making (and timing) a best interests decision, benefiting the patient while avoiding distress to the patient's family, as the next section will explore.

Caring for the patient's family

In most of the narrated cases, the patient collapsed with family members present. These family members emerged as key protagonists in the paramedics' narratives. Paramedics emphasised the importance of communicating clearly with family members both for transparency, and to glean information that might help in decision-making. However, paramedics also described careful and empathetic words and gestures through which they cared for the relatives' emotional well-being. This was part of the wider duty of care to the patient's family, which paramedics described as paramount. As one paramedic explained:

there's a point when—all these cardiac arrests when you feel like this is going to be really unsuccessful,

that I try, particularly in my role now, try and get my focus to shift to the family early because that's essentially then they will become your patient. (Paramedic 28)

In caring for the patient's family, paramedics were guided by the values of preventing future harm to the family and respecting them as a part of the patient's life. For example, like other paramedics, Paramedic 28 described inviting family members to hold the patient's hand after CPR was withdrawn:

before we finally stop, I always offer the family a chance to come and sit with [them], give them a kiss, sit down, hold their hand, all that sort of thing before we actually, you know, stop the machines and all this sort of thing. I think it gives them quite a lot of closure to see that. (Paramedic 28)

Relatives' accounts supported the importance paramedics placed on caring for the patient's family, mentioning acts of empathy and compassion as key to their memory of the event—a kind check-in, a caring demeanour, the facilitation of closure, and feeling looked after: 'once they'd made everything all, her all comfortable, there was one talking to us as well, making sure that we were alright' (Relative 6). When ambulance crews were not scrupulous in this duty of care, relatives noted that too: one relative was emotionally triggered by a wrapper from an electrical lead used in the resuscitation attempt, which had not been cleared away, while another spoke of how undignified it was that paramedics left his grandmother intubated after she had died.

In some cases, paramedics made the decision to do an extra round of resuscitation for the family's sake, showing them they did their utmost before stopping resuscitation and allowing them to say goodbye:

I normally suggest with the crew that we do another round just so that the family can spend a bit of time to see it happening and then at that point we, we stop while the family are there. (Paramedic 21)

However, while caring for the family was important, paramedics clarified this did not extend to providing unnecessary interventions against the patient's best interests. As this paramedic explained, when confronted with a relative who asked that CPR be continued:

... the partner of the lady, who had been doing compressions, asked the crew to carry on, said, 'Can you please just try?' And that's a very difficult situation to be in, but the, you know, the lead clinician there was, 'Look, it's not in her best interests'. (Paramedic 9)

Moral distress

In some cases, paramedics felt unable to make the decisions they thought would be best for the patient as these would have fallen outside their guidelines. Examples included cases where the paramedic thought CPR would

be futile, but there were no advance decision documents, no clear evidence of an end-of-life condition, and the patient's heart rhythm (either PEA, refractory ventricular fibrillation or adrenaline-dependent ROSC) meant CPR could not be stopped. For example, a paramedic described feeling distressed when they had to perform CPR on a patient who would not benefit from it, because there was no DNACPR/ReSPECT form in place:

And it's hard as a paramedic to go to someone, like I said, they're having care, they've got carers, they're having to have everything done for them. They're just, they can't see the TV, they can't hear, but they haven't got a ReSPECT form, so we start resuscitation and it's like, you know, would this person want this? (Paramedic 7)

These situations were ethically challenging for paramedics, who felt a sense of moral distress at having to perform an intervention they felt was undignified and of no benefit to the patient. As this paramedic expressed:

I think people deserve to die peacefully and with dignity and what, what we do sometimes is, is very invasive. But we're guided, we're guided by certain rules, aren't we, like we can't, we can't stop resuscitation unless, unless there's certain criteria met. And sometimes waiting for that criteria to [be]come evident before we stop, like the ReSPECT form or looking for signs of irreversible criteria. (Paramedic 22)

The moral distress of being bound to perform perceived futile CPR was compounded by the emotional impact of such attempts on the patient's family members, which one paramedic characterised as 'giving false hope':

And I think they're the ones that can be a bit more difficult because you feel like you're giving false hope to the family, you feel like it's not sort of dignified in any way for the patient. And everybody there knows that it's completely futile. But we don't really have a way to not do that, if that makes sense. (Paramedic 16)

Another paramedic described feeling frustrated at having to transport a patient who had likely died before the transport according to their clinical judgement, but where a senior clinician advised transport in alignment with guideline criteria. The patient's friends, who were present at the scene, were also distressed by this decision:

it was very difficult because they were saying 'Why are you doing this? Like, he's, you know, he's gone'. Why, you know, it was, so it was quite a difficult kind of scene. Because we all know, you know, we're just kind of doing it because we have to follow the kind of algorithm but, you know, I think our hands were tied, so. (Paramedic 14)

Later in the interview, the paramedic described this decision as representing a moral dilemma, but explained that ultimately, in the conflict between making the best

decision for the patient and following the guidelines, the latter had to be followed in order to protect the crew from liability.

While some paramedics expressed frustration at not having the autonomy to make particular decisions on their own—specifically, terminating CPR in some cases of PEA—when we asked if they thought paramedics needed more decision-making autonomy, most demurred, saying that given the wide range of experience within the ambulance service, it would be safer to maintain procedures as they are: 'Autonomising inexperienced staff can be risky, because people need guidance, they need experience, they need support' (Paramedic 27). On balance, most paramedics felt the gravity of the decision outweighed the moral distress or operational issues that might arise from paramedics' lacking autonomy to make some termination decisions on their own.

DISCUSSION

In this interview study with paramedics who attended OHCA events and relatives of cardiac arrest non-survivors, we found that decisions about whether to continue or terminate CPR involved multiple ethical considerations concerning the duty to protect the patient from harm, to act in their overall best interests and to care for the patient's family. Paramedics' and relatives' views of the patient's best interests were influenced by values such as patient dignity and assumptions about age and quality of life. However, the paramedics described decision-making processes that relied on clinical guidelines, rather than personal values and beliefs. This sometimes led to moral distress, due to conflict between what paramedics felt was right and what they had to do. While focused on the patient, paramedics also expressed a strong duty of care towards the patient's family, recognising the ambulance crew's key role in preventing future harm to the family. The relative interviews conveyed the emotional impact of cardiac arrest events on the patient's family, and the importance of clear communication and acts of care performed by the ambulance crew in helping them through this event, underscoring the ethical commitment that paramedics had towards patients' families.

Our finding that paramedics' decision-making around CPR is influenced by factors outside their guidelines is reflected in the wider literature on decision-making among paramedics and first responders.^{3 6 16–18} These factors include values, beliefs and attitudes that cannot be protocolised, leading to variability in decision-making and the potential disempowerment of patients.^{5 19} That paramedics made assumptions about age and quality of life within their CPR decision-making processes is consistent with earlier research⁶ and can be contextualised within the wider literature on treatment limitation decision-making. The Mental Capacity Act 2005 suggests that best interests decisions should not be made based on perceptions of patient age and quality of life.¹ However, studies that explored how intensive care doctors make

treatment limitation decisions found assumptions about patient age, clinical impression, patient independence and quality of life featured within decision-making.^{20 21} Similarly, a systematic review that examined DNACPR decision-making found that age and quality of life factored into decision-making.²²

Some paramedics described experiencing moral distress related to decisions to start, terminate or continue resuscitation—a finding aligned with a recent survey of emergency clinicians (including paramedics) across 24 countries, which found that 58% reported moral distress caused by inappropriate CPR.²³ In our study, moral distress emerged where guidelines conflicted with what paramedics felt was right; this highlights the guidelines' key role in paramedics' professional culture in England, thereby contributing to the wider literature on how organisational differences between healthcare systems shape clinicians' moral agency and moral distress.²⁴ However, while following decision-making guidelines at times led to moral distress, paramedic participants spoke of these processes as allowing paramedics to avoid providing differential care based on subjective judgements about patient characteristics. Referral to a senior clinician was often described by paramedic participants in these situations. A similar approach was described in a Norway-based study, where paramedics described turning to expert clinicians when negotiating the 'double pressure' exerted by relatives' expectations and the paramedics' own convictions on the one hand, and clinical guidelines on the other.²⁵

Paramedics felt the duty to care for the patient's family was a key ethical factor in the decision-making experience during an OHCA event. Previous studies have found that relatives witnessing an OHCA and the CPR attempt that follows experience both immediate distress and lingering trauma, and that both relatives and ambulance crews identify first responders as having a crucial role in supporting families.^{26–28} A systematic review of studies on relatives' experiences of OHCA suggested first responders should follow a family-centred model, which recognises families' needs for communication, inclusion, respect, debriefing and follow-up in order to understand the OHCA event and begin to heal from this experience.²⁹ Another study suggested family members can be viewed as part of a 'holistic framework' of CPR, which attends to both patients' survival and relatives' emotional well-being.³⁰

Paramedics must make ethically challenging and life changing decisions around termination of resuscitation. Guidance on negotiating these ethical challenges underpinned by specific consideration of ethical issues during training is needed to support paramedics in this aspect of their decision-making. In the intensive care context, Griffiths *et al* have suggested that a decision-making framework that facilitates the weighing of burdens and benefits could reduce reliance on individual clinicians' assumptions and increase transparency and equity.²⁰ A similar framework, taking into account the specific constraints of decision-making in OHCA, could be helpful to include in guidance and training for paramedics. There is also

a need to recognise and support paramedics who experience moral distress arising from their experiences. Boulton *et al* have suggested that a personalised approach to supporting clinicians in intensive care who experience moral distress is needed, while noting the importance of a supportive organisational culture and the availability of designated experienced senior staff in the support process.³¹ Explicit consideration of moral distress should be included in developing clinical support structures for paramedics.

The study has several strengths. Through including participants from two ambulance trusts, we could account for structural factors within narratives of decision-making and clinical processes. Moreover, through including both paramedics and relatives of OHCA non-survivors, we attended to the perspectives of the immediate stakeholders in an OHCA event, developing a more comprehensive account of the ethical concerns involved. Grounding the interviews in cardiac arrest cases the paramedic participants had attended, we were able to focus the discussions on specific practices, experiences and reflections, providing a more reliable empirical basis for the analysis. The study was limited by the fact that no OHCA survivors volunteered to participate, despite our attempts to recruit survivors. Previous studies have shown that cardiac arrest survivors and their relatives experience long-term emotional sequelae different from those of the relatives of non-survivors,^{32 33} and it would have been valuable to explore these in relation to ethical concerns. Additionally, because some of the paramedic participants attended cardiac arrest events very frequently, a few could not remember the event for which they had been recruited; they therefore discussed another recent event, potentially biasing discussion towards events featuring memorable elements. While relative participants referred to what the patients would have wanted, most had not discussed cardiac arrest and its potential outcomes with the patients in advance, so these understandings may have been articulated after the event as part of reconciling with the patient's death. Although we attempted to recruit clinicians and relatives associated with the same cases, this proved to be challenging, and thus we could not triangulate relatives' and paramedics' experiences. Finally, we acknowledge that while this was beyond the scope of the study, it would have been valuable to observe ethical decision-making in action during OHCA events.¹⁹

Conclusion

This interview study with paramedics and relatives of patients who did not survive OHCA events highlights the importance of non-protocolised ethical considerations in paramedic decision-making about terminating CPR. The patient's best interests were foremost and established guidelines and processes were used to reach a decision that prevented harm to the patients. However, paramedics also felt ethically obligated to the patient's family, and expressed moral distress when personal convictions clashed with the guidelines, thereby increasing

the ethical complexity of these events. A framework for ethical decision-making in OHCA, alongside organisational support for decision-making, may help paramedics reduce their moral distress and provide consistent and transparent decisions for patients and their families.

Acknowledgements The authors would like to thank Justin Kearney, Eleanor Reeves and Julia Walsh for their contribution to data collection.

Contributors KE collected data, conducted data analysis and drafted the manuscript. CH collected data, conducted data analysis and provided critical feedback on the manuscript. GG conducted data analysis and provided critical feedback on the manuscript. GDP contributed to study design and provided critical feedback on the manuscript. MAS contributed to study design and provided critical feedback on the manuscript. FG contributed to study design, conducted data analysis and provided critical feedback on the manuscript. A-MS contributed to study design, conducted data analysis and drafted the manuscript. All authors reviewed and approved the final version of the manuscript. A-MS is the guarantor.

Funding This article presents independent research funded by the National Institute for Health Research (NIHR) under the Health Services and Delivery Research Programme (project number 17/99/34).

Disclaimer The views expressed in this publication are those of the authors and not necessarily those of the NIHR or the Department of Health and Social Care.

Competing interests A-MS, FG and MAS have been awarded research funding from the National Institute for Health and Social Care Research. A-MS is a member of Resuscitation Council UK's ReSPECT wider stakeholder group. KE has been awarded research funding from the Medical Research Council. GDP has been awarded research funding from the National Institute for Health and Social Care Research, Resuscitation Council UK, Laerdal Foundation and British Heart Foundation. GDP is a trustee for the Resuscitation Council UK, holds other volunteer roles with the European Resuscitation Council and International Liaison Committee on Resuscitation, and is an editor for the journals *Resuscitation* and *Resuscitation Plus*.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was reviewed and approved by East Midlands—Derby Research Ethics Committee (19/EM/0358). All participants provided verbal informed consent which was documented by the researcher. All interviews were digitally recorded and professionally transcribed, with identifying details omitted. Participants have been pseudonymised throughout this paper.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as supplementary information. Although data in this qualitative study were pseudonymised, it is possible that with access to raw data individuals might be identifiable from participants' descriptions of events. The data are highly sensitive and not suitable for sharing beyond what is contained within the manuscript. Further information regarding this can be obtained from the corresponding authors.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

Author note FG and A-MS are joint last authors.

ORCID iDs

Karin Eli <http://orcid.org/0000-0001-9132-8404>

Michael A. Smyth <http://orcid.org/0000-0003-0220-2223>

Frances Griffiths <http://orcid.org/0000-0002-4173-1438>

Anne-Marie Slowther <http://orcid.org/0000-0002-3338-8457>

REFERENCES

- 1 Mental Capacity Act 2005, Available: <https://www.legislation.gov.uk/ukpga/2005/9/contents/enacted>
- 2 Joint Royal Colleges Ambulance Liaison Committee. *JRCALC clinical guidelines 2022*. Class Professional Publishing, 2022.
- 3 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.
- 4 Anderson NE, Gott M, Slark J. Grey areas: New Zealand ambulance personnel's experiences of challenging resuscitation decision-making. *Int Emerg Nurs* 2018;39:62–7.
- 5 Milling L, Nielsen DS, Kjær J, et al. Ethical considerations in the prehospital treatment of out-of-hospital cardiac arrest: A multi-centre, qualitative study. *PLoS One* 2023;18:e0284826.
- 6 Brandling J, Kirby K, Black S, et al. Emergency medical service provider decision-making in out of hospital cardiac arrest: an exploratory study. *BMC Emerg Med* 2017;17:24.
- 7 Mentzelopoulos SD, Couper K, Voorde PV de, et al. European Resuscitation Council Guidelines 2021: Ethics of resuscitation and end of life decisions. *Resuscitation* 2021;161:408–32.
- 8 NIHR. Exploring and improving resuscitation decisions in out of hospital cardiac arrest, Available: <https://fundingawards.nihr.ac.uk/award/17/99/34>
- 9 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77–101.
- 10 Dunn M, Sheehan M, Hope T, et al. Toward methodological innovation in empirical ethics research. *Camb Q Healthc Ethics* 2012;21:466–80.
- 11 N.d. Random.org. Available: <https://www.random.org>
- 12 Gale NK, Heath G, Cameron E, et al. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Med Res Methodol* 2013;13:117:1–8.
- 13 Hennink MM, Kaiser BN, Marconi VC. Code Saturation Versus Meaning Saturation: How Many Interviews Are Enough? *Qual Health Res* 2017;27:591–608.
- 14 Johnson DR, Scheitle CP, Ecklund EH. Beyond the In-Person Interview? How Interview Quality Varies Across In-person, Telephone, and Skype Interviews. *Soc Sci Comput Rev* 2021;39:1142–58.
- 15 Krouwel M, Jolly K, Greenfield S. Comparing Skype (video calling) and in-person qualitative interview modes in a study of people with irritable bowel syndrome - an exploratory comparative analysis. *BMC Med Res Methodol* 2019;19:219.
- 16 Milling L, Kjær J, Binderup LG, et al. Non-medical factors in prehospital resuscitation decision-making: a mixed-methods systematic review. *Scand J Trauma Resusc Emerg Med* 2022;30:24.
- 17 de Graaf C, de Kruijff AJTCM, Beesems SG, et al. To transport or to terminate resuscitation on-site. What factors influence EMS decisions in patients without ROSC? A mixed-methods study. *Resuscitation* 2021;164:84–92.
- 18 Anderson NE, Gott M, Slark J. Commence, continue, withhold or terminate?: a systematic review of decision-making in out-of-hospital cardiac arrest. *Eur J Emerg Med* 2017;24:80–6.
- 19 Timmermans S. When Death Isn't Dead: Implicit Social Rationing during Resuscitative Efforts. *Sociol Inq* 1999;69:51–75.
- 20 Griffiths F, Svantesson M, Bassford C, et al. Decision-making around admission to intensive care in the UK pre-COVID-19: a multicentre ethnographic study. *Anaesthesia* 2021;76:489–99.
- 21 Bassford CR, Krucien N, Ryan M, et al. U.K. Intensivists' Preferences for Patient Admission to ICU: Evidence From a Choice Experiment. *Crit Care Med* 2019;47:1522–30.
- 22 Mockford C, Fritz Z, George R, et al. Do not attempt cardiopulmonary resuscitation (DNACPR) orders: a systematic review of the barriers and facilitators of decision-making and implementation. *Resuscitation* 2015;88:99–113.
- 23 Druwé P, Monsieurs KG, Piers R, et al. Perception of inappropriate cardiopulmonary resuscitation by clinicians working in emergency departments and ambulance services: The REAPPROPRIATE international, multi-centre, cross sectional survey. *Resuscitation* 2018;132:112–9.
- 24 Rosenwohl-Mack S, Dohan D, Matthews T, et al. Understanding Experiences of Moral Distress in End-of-Life Care Among US and UK

- Physician Trainees: a Comparative Qualitative Study. *J Gen Intern Med* 2021;36:1890–7.
- 25 Nordby H, Nøhr Ø. The ethics of resuscitation: how do paramedics experience ethical dilemmas when faced with cancer patients with cardiac arrest? *Prehosp Disaster Med* 2012;27:64–70.
- 26 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.
- 27 Risson H, Beovich B, Bowles KA. Paramedic interactions with significant others during and after resuscitation and death of a patient. *Australas Emerg Care* 2023;26:113–8.
- 28 Dainty KN, Colquitt B, Bhanji F, et al. Science Subcommittee of the American Heart Association Emergency Cardiovascular Care Committee. Understanding the importance of the lay responder experience in out-of-hospital cardiac arrest: a scientific statement from the American Heart Association. *Circulation* 2022;145:e852–67.
- 29 Douma MJ, Myhre C, Ali S, et al. What Are the Care Needs of Families Experiencing Sudden Cardiac Arrest? A Survivor- and Family-Performed Systematic Review, Qualitative Meta-Synthesis, and Clinical Practice Recommendations. *J Emerg Nurs* 2023;49:912–50.
- 30 Timmermans S. High touch in high tech: the presence of relatives and friends during resuscitative efforts. *Sch Inq Nurs Pract* 1997;11:153–68.
- 31 Boulton AJ, Slowther AM, Yeung J, et al. Moral distress among intensive care unit professions in the UK: a mixed-methods study. *BMJ Open* 2023;13:e068918.
- 32 Larsen MK, Mikkelsen R, Budin SH, et al. With Fearful Eyes: Exploring Relatives' Experiences With Out-of-Hospital Cardiac Arrest: A Qualitative Study. *J Cardiovasc Nurs* 2023;38:E12–9.
- 33 Case R, Stub D, Mazzagatti E, et al. The second year of a second chance: Long-term psychosocial outcomes of cardiac arrest survivors and their family. *Resuscitation* 2021;167:274–81.