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ORIGINAL RESEARCH

Paediatric Nurses' Decision-Making About CPR in Challenging Clinical Scenarios

Insights From a Cross-Sectional Survey

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Abstract This study explored paediatric nurses' decision-making regarding resuscitation in patients with unequivocal signs of death and no Do Not Resuscitate (DNR) order. A cross-sectional survey was conducted between October 2023 and April 2024 across the paediatric wards of four Australian hospitals. Participants were asked to respond to two hypothetical clinical scenarios involving a three-year-old boy and a twelve-year-old girl, both clearly deceased—neither of whom had documented DNR orders. Participants indicated their intended resuscitation plan and reasoning for each scenario. Data were analysed descriptively. All respondents ($n=26$) (100 per cent) indicated that they would initiate resuscitation for the younger child, while 84.6 per cent ($n=22$) would do so for the twelve-year-old. The absence of a DNR order and perceived duty of care were key reasons for their decisions. Findings reveal ethical, legal, and clinical challenges inherent to paediatric resuscitation decisions. This highlights the need for clearer policies, education, and support to guide determination of when resuscitation is appropriate.

Keywords Cardiopulmonary resuscitation · Cross-sectional studies · Decision-making · Defensive medicine · Ethics · Nursing · Resuscitation orders

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Introduction

Cardiopulmonary resuscitation (CPR) is a cornerstone of paediatric emergency care. It is estimated that 15,200 children receive CPR in U.S. hospitals each year (Morgan et al. 2021). In Australia and New Zealand, there are 9.5 per 1,000 admissions to Paediatric Intensive Care Units (PICU) following an in-hospital cardiac arrest (Straney et al. 2015). Of those who receive CPR, outcomes are generally poor, with many children failing to survive or surviving with chronic neurological deficit. Fewer than half survive in-hospital cardiac arrest to discharge, and many who do suffer neurodevelopmental impairments (Bimerew et al. 2021; Shimoda-Sakano et al. 2023; Bhanji et al. 2017). Unlike general PICU survival rates, which have improved over the past two decades, there has been no significant increase in survival rates following paediatric cardiac arrest (Straney et al. 2015). These outcomes underscore both the importance of healthcare professionals being skilled in techniques of CPR and of understanding when CPR should *not* be attempted: because it is unlikely to be effective, will likely prolong suffering or create harm without meaningful benefit, or is inconsistent with the express wishes of children and/or their parents (Collins, Tatum, and Lantz 2014).

In recent years, explicit strategies and policies that enable healthcare professionals and patients or their substitute decision-makers to recognize that CPR is not indicated or is not desired have become a standard part of healthcare. In the paediatric setting, resuscitation planning orders may be documented in Do not Resuscitate (DNR) or Allow Natural Death (AND) orders (Lotz et al. 2017; Linebarger, Johnson, and Boss 2022) (hereafter referred to as "DNR orders"). While critical to aligning care with patient prognosis and preferences, and consistent with principles of shared decision-making and goal-orientated care, systemic inconsistencies in practice continue to complicate management of critical and chronic illness (Ewanchuk and Brindley 2006; Carr et al. 2021). There are times, however, where patients may experience a cardiorespiratory arrest and not have a DNR order in place, either because arrest was not anticipated or because of a lapse or delay in resuscitation planning. In these situations, it is often assumed that CPR should be commenced. While the presumption to commence CPR in all situations where a patient is found deceased, particularly in paediatrics, is understandable, performing it may be a source of clinical, psychological, and moral distress for staff, especially where CPR is known to be futile, contrary to the interests of the patient, or completely pointless because the patient has unequivocal signs of death (Moore 2023). Importantly, while staff may feel that they are somehow obliged to initiate CPR—even where a patient has unequivocal signs of death—there is no legal or policy obligation to perform CPR when death is evident (Skowronski et al. 2022; Kerridge, Lowe, and Stewart 2013). In all Australian jurisdictions, a DNR order is not required for healthcare professionals to withhold CPR when clear signs of death are present (or, if in Queensland, CPR is inconsistent with best practice in acute emergencies) (Queensland Ambulance Service 2024; *Guardianship and Administration Act 2000* (Qld); NSW Ministry of Health 2014, 2023; Kerridge, Lowe, and Stewart 2013).

In part, this may be an educational or professional issue, as resuscitation training is generally focussed on the technical execution of CPR and there is often limited consideration of the ethical and legal issues surrounding CPR beyond formal directives (Mitropoulou and Fitzsimmons 2022). Specifically, there is generally limited or no education regarding when CPR need not or should not be initiated at all and what should be done when a patient is clearly deceased. This may be a significant problem for nurses, who frequently act as first responders in hospital settings and must navigate complex decisions when faced with clear signs of death or conflicting family demands (Douma et al. 2023; Soar et al. 2019), leaving them underprepared and unsupported (Lauridsen et al. 2022).

This study explored the decision-making of paediatric nurses regarding the initiation of CPR in patients with unequivocal signs of death and without a documented DNR order, using hypothetical scenarios.

Methods

This was a cross-sectional study conducted between October 2023 and April 2024 across four public hospital paediatric wards in Sydney, New South Wales. Data was collected online via REDCap (Research Electronic Data Capture) (Harris et al. 2019). The instrument was pilot tested prior to study commencement to ensure face and content

validity. The survey was distributed via regular emails containing a brief description of the study with a link and QR code to the online survey. Participation was voluntary. The survey included both tick-box and free-text responses, and took approximately ten minutes to complete. The study protocol was approved by the South Eastern Sydney Local Health District Human Research Ethics Committee (Reference: 2023_ETH01759).

The survey consisted of twenty-one questions, including eight demographics. Participants were presented with two hypothetical clinical scenarios (Table 1) where patients were found by nursing staff to have unequivocal signs of death—i.e. unresponsive, cold, cyanosed, pulseless, and stiff—and no documented resuscitation order. Participants were asked what they would do in those scenarios and to provide their reasoning. Specifically, the survey asked if they would commence full CPR, "limited" CPR, or confirm that the patient was dead and alert the medical team. "Limited" CPR was defined as performing CPR actions in slow motion ("slow codes"), selective use of CPR techniques ("partial codes"), administering lifesaving medications without chest compressions ("chemical codes"), and initiating CPR for the benefit of others rather than the patient ("show codes").

Data Analysis

Data were imported from REDCap and analysed in Excel. The data was anonymized, and no identifiable personal data reported. Due to the limited number of responses in this cohort, we were unable to perform comprehensive statistical analyses or use the free text responses. However, the available data have been systematically summarized, with frequencies calculated to facilitate an understanding of the trends and patterns within the available data.

Results

Of 149 eligible paediatric nursing staff, twenty-six responded (17.4 per cent). Most respondents were between thirty-one and fifty years old (52.0 per cent). 46.2 per cent were registered nurses, 46.2 per cent worked in general medicine wards, and 34.6 per cent had eleven to twenty years of experience. The majority (57.7 per cent) had basic life support (BLS) as the highest level of CPR training, and 65.4 per cent had a postgraduate degree. Over three quarters of respondents (76.9 per cent) had previously initiated CPR, and only one respondent reported ever having made a decision *not* to commence CPR in a patient without a DNR order (Table 2).

All respondents (n = 26) for Scenario one reported they would "Call a Code blue and commence full CPR." The majority of participants (84.6 per cent, n = 22) responded similarly in Scenario two. One respondent chose to commence "limited" CPR (Fig. 1).

The participants were then asked to indicate the reasons for commencing CPR in each scenario. In

Table 1 Hypothetical scenarios

Scenario one	SJ, a three-year-old previously well boy, was admitted to PICU with viral pneumonia (Influenza A). Due to concerns regarding secondary bacterial infection, he was given intravenous antibiotics in addition to antivirals. After two weeks, he was switched to oral antibiotics as he had improved significantly and no longer required supplemental oxygen. He was transferred to the ward to complete his treatment in hospital, as his parents were experiencing some social challenges and unable to stay with him on the ward at night. No Allow Natural Death (AND) order has been documented. On the seventeenth day of his admission, you find SJ in his bed unresponsive, cold, cyanosed, pulseless, and stiff.
Scenario two	RM, a twelve-year-old girl, was admitted to PICU following a near-drowning event after she dived into a shallow pool, hitting her head and becoming unconscious. She was resuscitated at the scene. but suffered a devastating hypoxic brain injury. After three months of intensive care and invasive ventilation, she was extubated and moved to the ward. At this stage, she was able to breathe independently and did not require supplemental oxygen, but she had a significant neurological injury and could not independently sit, stand, walk, or speak. She was unable to swallow safely, required nasogastric tube feeding and experienced frequent seizures, which were managed with anticonvulsants. No Allow Natural Death (AND) order has been documented. One afternoon, following handover, you find her unresponsive, cold, cyanosed, pulseless, and stiff.

The results have been reported according to the STROBE guidelines (von Elm et al. 2007)

Table 2 Participant demographics and knowledge of CPR outcomes

	n	Per cent
Gender *(n = 26)*		
Female	26	100
Age range (years) *(n = 25)*		
< 30 years old	9	36
31–50 years old	13	52
> 51 years old	3	12
Professional designation/title *(n = 26)*		
Registered Nurse/Midwife	12	46.2
Advanced Practice Nurse	14	53.8
Highest level of education *(n = 26)*		
Technical college/Hospital trained	2	7.7
Bachelor's degree	7	26.9
Postgraduate degree	17	65.4
Area of practice *(n = 26)*		
PICU/NICU	7	26.9
General medicine	12	46.2
Other	7	26.9
Years of experience in nursing *(n = 26)*		
< 5 years	6	23.1
6–10 years	5	19.2
11–20 years	9	34.6
> 20 years	6	23.1
Highest level of CPR training *(n = 26)*		
Basic life support	15	57.7
Advanced life support	11	42.3
Ever initiated CPR *(n = 26)*		
Yes	20	76.9
No	6	23.1
Ever made a decision NOT to attempt CPR in the absence of a DNR order *(n = 26)*		
Yes	1	5.3
No	25	94.7
Did you receive a POSTIVE response from NOT commencing CPR *(n = 1)*		
Yes	1	100
No	0	0
What POSTIVE outcomes did you experience? *(n = 1, multiple responses were possible)*		
Support from colleagues	1	
Enhanced confidence in my professional/ethical decision making	1	
Knowledge of CPR outcomes		
Per cent of CPR attempts that achieve Return of Spontaneous Circulation (ROSC) *(n = 20)*		
< 5 per cent of the time	2	10
50–80 per cent of the time	5	25
> 80 per cent of the time	12	60
I don't know	1	5
Per cent of CPR attempts that result in the patient being discharged from hospital *(n = 20)*		
< 5 per cent of the time	3	15

Table 2 (continued)

	n	Per cent
< 50 per cent of the time	1	5
50–80 per cent of the time	3	15
> 80 per cent of the time	7	35
I don't know	6	30
Who should make the decision NOT to commence CPR in people with signs of death with a CPR order? *(multiple responses were possible)*		
Doctor	25	
Senior Nurse	4	
Other (including next of kin)	1	

Scenario one, the primary reason for commencing CPR was fulfilling the "duty of care" to the patient ($n = 19$). Further reasons included adherence to hospital policy ($n = 18$) and training ($n = 18$), and the idea that, in the absence of a DNR order, there is no option but to begin CPR (Table 3). Respondents also frequently indicated that initiating CPR was the "ethical thing to do" ($n = 13$), that the law required that they initiate CPR ($n = 13$) and proscribed their certifying death ($n = 12$), and that this was what parents would expect ($n = 13$). In Scenario two, the three main reasons included fulfilling their "duty of care'"($n = 17$), there being no option but to begin CPR in the absence of a DNR order ($n = 15$), and adherence to hospital policy ($n = 10$) (Table 3).

Finally, participants were asked to rank the reasons to commence CPR in both scenarios. The highest ranking for both scenarios was "in the absence of a DNR order, there is no option but to begin CPR," with seven responses in Scenario one and five responses in Scenario two. Five of the highest-ranking reasons for initiating CPR were identical in both scenarios (Fig. 2).

Discussion

This study explored the decision-making of paediatric nurses regarding the initiation of CPR in patients with unequivocal signs of death and without a documented

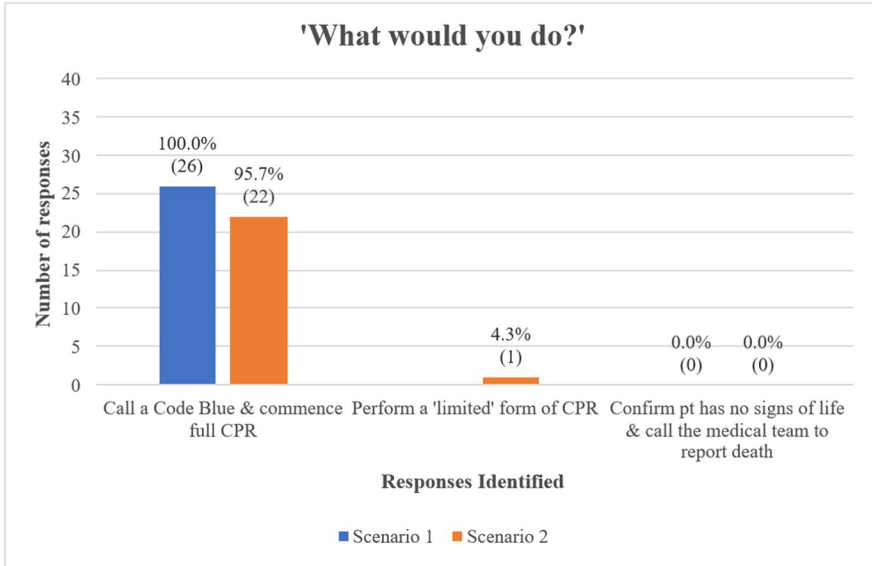

Fig. 1 Bar chart for what respondents would do ("CPR" = Cardiopulmonary Resuscitation; "pt" = patient)

Table 3 Reasons for initiating full CPR

Reason	Scenario one	Scenario two
It is the ethical thing to do	13	6
Doing so would be respectful	2	1
Doing so enables me to fulfil my duty of care to the patient	19	17
I am required by hospital policy to do so	18	10
I am required by law to do so	13	5
It is important to "do something," even if it is likely to be futile	4	4
It is what my colleagues would expect/approve of	5	3
It is what my supervisors/managers would expect/approve of	6	3
It is what the patient's family would expect/approve of	13	6
I am not legally permitted to certify death	12	8
I am not confident I can determine if a patient is dead	2	1
It is what I and my colleagues usually do in this situation	7	1
It is what I was trained to do	18	8
It is what the patient would want	3	0
It is what the family would want	7	2
In the absence of a DNR order, there is no option but to begin CPR	15	15
It is what a good nurse would do	6	0
It is important to me to feel like a good nurse	1	0

DNR order, using hypothetical scenarios. This data was part of a larger study that surveyed nurses working in acute adult inpatient areas and adult critical care areas (McErlean et al. 2025). Similar to nurse decision-making in adult settings, we found that most paediatric nurses indicated that they would initiate CPR even in cases where it was completely futile because the patient had unequivocal signs of death. Further, our results suggest that training, professional and personal values, misconceptions about law and policy surrounding CPR, and defensive practice may all impact nurses' decision-making regarding the initiation of CPR.

"Defensive practice" is defined as the provision of care primarily to avoid legal liability or professional criticism, and is a well-established concept in healthcare, particularly within medicine (Eftekhari et al. 2023; Studdert et al. 2005). In paediatric resuscitation, defensive medicine may manifest as prolonged or inappropriate CPR efforts, even when the child exhibits clear signs of death or when the intervention is judged to be futile. Such actions, though well-intentioned, can conflict with ethical principles of beneficence, non-maleficence, and respect for the child and family and their entitlement to receive compassionate, non-burdensome care (Kennedy, et al. 2023). Further, this practice may contribute to moral distress among healthcare professionals, particularly nurses, who may feel compelled to act against their clinical judgment or ethical values (Arnold 2020). It may also deny the child a peaceful death without unnecessary intervention and their family the particular intimacy that accompanies the passing of a loved one.

The results from this study make it clear that there needs to be improved education for nurses and midwives regarding the clinical determination of death and the situations in which CPR need not be initiated. This includes providing them with a clearer understanding of their rights, responsibilities, and legal protections when caring for patients with unequivocal signs of death. Furthermore, it suggests that there is a lack of understanding of the ethical and legal implications associated with such critical decisions. There is a pressing need to support nurses and midwives through comprehensive and accessible training programmes that prepare them for these complex and often distressing scenarios. As resuscitation decisions are rarely black and white, particularly in paediatrics,

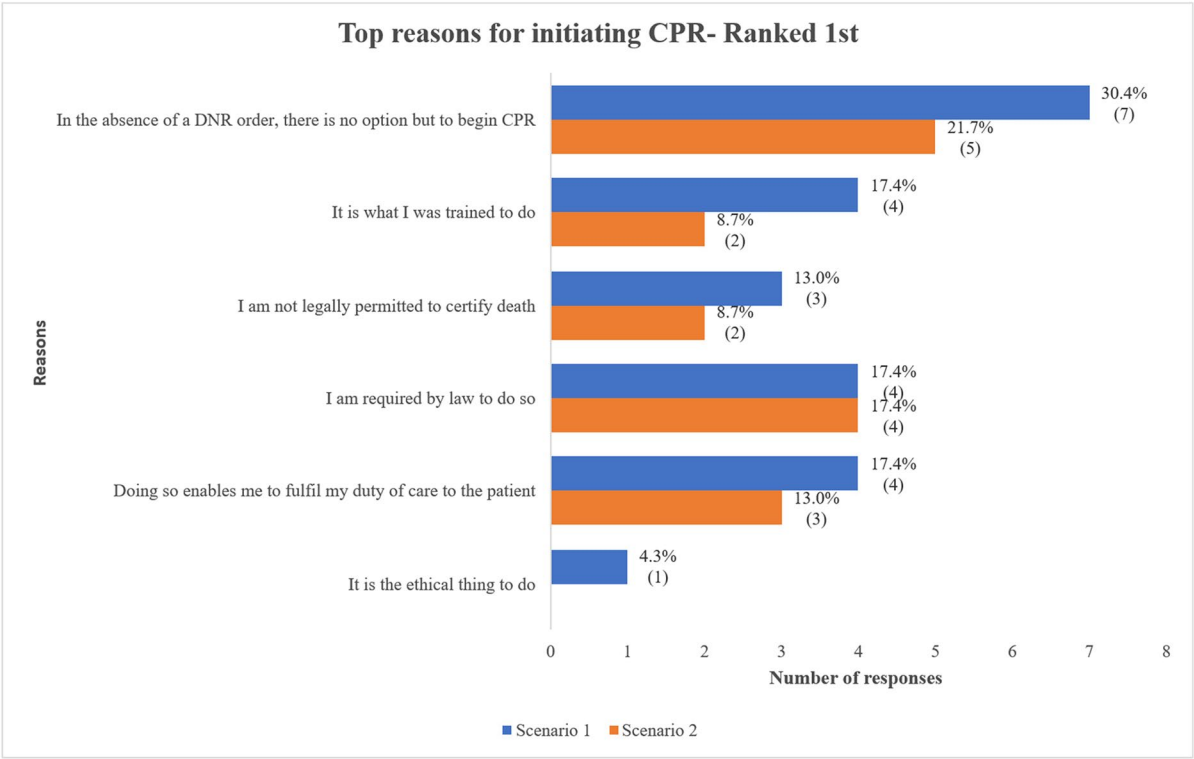

Fig. 2 Bar chart of top reasons for initiating CPR

clinicians must be empowered to apply critical thinking in conjunction with policy and ethical frameworks. The assumption that misunderstandings of law and policy are limited to nurses is unfounded. Research has shown that doctors also frequently misinterpret the legal grounds for initiating or withholding life-sustaining treatment, including CPR (White, et al. 2014). This reinforces the notion that issues of legal and ethical confusion are systemic rather than profession-specific, an insight which suggests that all healthcare providers would benefit from interprofessional training in this area.

Limitations

To our knowledge, this is the first survey to explore paediatric nurses' attitudes and decision-making regarding the initiation of CPR in patients with unequivocal signs of death and no resuscitation order. Although there are limited respondents to this survey, the response rate of 17.4 per cent is consistent with that reported in surveys of healthcare professionals. Given the sample size, comprehensive statistical analyses were not possible, thereby reducing the study's generalizability.

As is the case with all survey research, our data is also subject to self-reporting bias, whereby participants present themselves in a more favourable light or inaccurately recall or report past behaviours, beliefs, or experiences due to social desirability bias, fear of judgment, or misunderstanding of the questions posed (Althubaiti 2016).

Future research should incorporate a larger cohort that includes paediatric-specific hospitals and health networks to address the above limitations. Additionally, assessing the perspectives of other stakeholders, such as families and medical teams, would provide a more holistic view of the decision-making process in paediatric resuscitation contexts.

Conclusion

This study provides unique insights into the ethical, legal, and educational dimensions of paediatric CPR decision-making. It underscores that the challenge is not about limiting life-saving care but rather about supporting healthcare professionals to withhold CPR when it is clearly inappropriate, based on clinical evidence, legal standards, and compassionate care principles. Addressing these issues through structured education, policy clarity, and institutional support can help ensure that children receive care that is not only technically sound but also ethically justifiable and emotionally respectful.

Advance Care Planning (ACP) provides direction regarding family preferences and previously discussed care goals but it does not override the clinician's responsibility to assess the clinical context (Linebarger, Johnson, and Boss 2022). Importantly, when a patient is clearly and unequivocally dead, the presence or absence of an ACP or a formal DNR order is irrelevant—resuscitative or life-sustaining interventions are neither indicated nor appropriate in such circumstances (Kerridge, Lowe, and Stewart 2013). The decision to commence CPR should be based on clinical appropriateness, potential benefit, and the broader ethical context, not solely on the presence or absence of documentation.

While nurses are generally responsible for initiating CPR, resuscitation decisions are a shared professional and organizational responsibility. This means that all staff must be skilled in techniques of CPR and recognize when it is appropriate to call a Code, able to recognize circumstances in which patients and parents should be invited to indicate their preferences regarding CPR as well as the limitations of those preferences, and aware of the importance of rigorously documenting resuscitation management plans in a timely fashion. But this also means that staff should understand when it is *not appropriate* to initiate CPR, *irrespective* of whether a DNR order has been documented. It is the organization's responsibility to ensure that policy accurately reflects the legal and ethical requirements of CPR when a child has unequivocal signs of death. While this will be confronting for many health professionals—doctors and nurses—who have grown accustomed to the idea that initiation of CPR is always the "right thing to do," it is no longer appropriate for health professionals to be ignorant of their ethical and legal responsibilities, and to make decisions "in the dark."

Author's Contribution Suzanne Bowdler and Gemma McErlean were responsible for the first draft of the manuscript, but all authors contributed to the manuscript and approved the final version for submission.

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Data Availability We will make the data available upon reasonable request.

Declarations

Ethics Approval The study protocol was approved by the South Eastern Sydney Local Health District (SESLHD) Human Research Ethics Committee (HREC) (Reference: 2023_ETH01759).

Consent All responses were anonymous and consent was assumed by return completion of the survey.

Competing interests The authors have no relevant financial or non-financial interests to disclose. Ian Kerridge and Gemma McErlean are members of the JBI Editorial Council.

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