A Mixed-Methods Study of DNACPR in Nursing Practice

In partial fulfilment of the degree of Clinical Doctorate in Nursing

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Chapter 1 Introduction

1.1 Abstract

This thesis is a mixed-methods study of Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) in nursing practice. It was undertaken in completion of a Clinical Doctorate in Nursing. The study aimed to explore nurse understanding of DNACPR, and the impact of that on nursing care. The research questions were firstly, what do nurses understand about DNACPR, and decisions related to CPR? Secondly, how do those understandings impact the care nurses provide and risk of harm to patients?

A three-phase mixed-methods design was used (phase one qualitative, phase two building and phase three, quantitative). A qualitative analysis of secondary data was followed by the construction of a questionnaire which was self-administered online by a convenience sample of nurses working with older people. Mixed-methods were used for several reasons. This design enabled the analysis of a previously un-researched secondary dataset in a manner most suitable to the rich text data. Mixed-methods enabled DNACPR to be studied from different perspectives, integrating the results to create new evidence. This evidence partially filling gaps identified by a scoping review of the literature.

In phase one the data were transcripts of Nursing and Midwifery Council (NMC) fitness to practice (FtP) hearings regarding DNACPR. The sample was 30 transcripts of hearings held between 2007 and 2017 in which DNACPR was a central factor in the charges brought against the nurse. The 2007 date was chosen because this was when guidelines on decisions related to CPR were introduced by the professional bodies for medicine and nursing in the UK.

The transcripts were analysed using a six-stage reflexive thematic analysis. Four overarching themes emerged from the data: "expectations of nurses"; "to resuscitate or not?"; "nurse perceptions of dying well" and "patient autonomy and safety". The findings from the thematic analysis were mapped to the questionnaire built in phase two, and informed the scheme of statistical analysis used in phase three. Phase two included the building and piloting of the questionnaire, including the development of vignettes. The vignettes were developed to reflect the phase one findings regards patients and residents, and were developed until all themes were represented in a vignette – resulting in four vignettes.

In phase three an online self-administered questionnaire collected data from nurses working in older person's care. This was a convenience sample of 2.8% (n = 352) of the 12,500 members of the Royal College of Nursing (RCN) Older Peoples Nursing Forum.

This population was chosen as older people have been identified as being disproportionately impacted by DNACPR. Recently DNACPR has been highlighted as a risk of harm to older people during the COVID-19 pandemic. The sample size was determined using the World Health Organisation Sample Size Calculator.

The quantitative data was analysed using SPSS. The analysis included descriptive, Chi Square and logistic regression statistics. It was found that understanding of DNACPR was poor and highly varied. Results revealed that 64.5% (n = 277) would perform CPR even if they knew it would be futile. Also 46.9% (n = 165) reported that DNACPR makes patients ineligible for emergency or critical care. Other findings indicative of risk of harm included an understanding emergent in the "expectations of nurses" theme that nurses should not make decisions related to DNACPR, even when it was accepted that CPR was futile. Advanced life support training (ALS) was found to be associated with a better understanding of DNACPR, and responses less likely to be associated with risk of harm. In the theme "to resuscitate or not?" training, including life support training emerged as informing nurse decision making. Nurses working in nursing homes were found least likely to have ALS training and most likely to work alone.

While this research was being carried out it informed policy changes including a revised COVID-19 policy on decisions related to CPR (HSE 2020). Preliminary findings have been presented at the European Nursing Doctorate Conference in Austria in September 2019. A paper has been submitted for publication to Resuscitation, the journal of the European Resuscitation Council (Appendix 8, p. 188). Study information and the data are available at www.DNACPR-study.com for use by fellow researchers.

Notwithstanding several limitations which are described later, it was concluded that DNACPR is not fulfilling its intended purpose. This is because of conflicting understanding about what DNACPR is for, and who can apply it in practice. Nurses were found to be motivated to do what was right for patients. But their attempts to achieve this were hindered by the complex bioethics of decisions related to CPR. There is no specific bioethical

framework to help nurses make decisions about CPR. In the absence of any such framework attempts to balance the ethical principles of patient autonomy, beneficence, nonmaleficence, and justice as applied to CPR were divisive. Bioethics therefore are proposed as the primary lens through which practice development should be approached.

Different nurses were found have different views on what the right thing to do was in each cardiac arrest situation. This is despite the existence of both DNACPR and the NMC Code to guide practice. It is recommended that consideration be given to phasing DNACPR out of use in nursing homes. Also, the development of a bioethical framework specifically for decisions related to CPR is recommended underpinned by a solid foundation in bioethics within general and ALS training. Because training in ALS was significantly associated with a better understanding of DNACPR, consideration should be given to examining what specific component of ALS is most impactful so that this could be utilised as an avenue for practice development.

1.2 Introduction

Having started work as a staff nurse in intensive care directly after graduating I was exposed to resuscitation early and frequently in my career. I developed an interest in resuscitation itself and ways of increasing its success on the unit where I worked. I joined the hospital resuscitation team and became cardiac arrest audit lead. An incident in my second-year post graduation gave me cause to reflect on this area of practice.

A patient I was nursing was scheduled for the withdrawal of care. This was agreed by the clinical team and the family on a Monday, to happen on Wednesday of that week. The delay was to allow a family member to travel to the hospital. A DNACPR order had already been in place for the patient at that time. On Tuesday, the patient had a cardiac arrest and despite the DNACPR order resuscitation was commenced. The resuscitation was prolonged and ultimately achieved spontaneous return of circulation. As a young nurse at the time, I struggled with the motivation of the team to resuscitate the patient, thereby allowing the family to be present for the withdrawal of care the next day. I found the prolonged resuscitation a difficult situation to be in given the team knew there was no chance of survival. The next day though, when I nursed the patient and family through the withdrawal

of care, I could see how important that was for them. I reflect on those events often since and having moved from intensive care to the work in the field of patient safety I now look back through a different lens. What was it we were trying to achieve, for who and why? I continue to see DNACPR weigh heavily on patients and staff in clinical practice.

The events above happened in the 1990's by which time CPR was no longer a specialist skill, it was being taught to school children as basic first aid (Wilks & Pendergast 2015). CPR was depicted on television as being a highly successful and simple way to save a life. Success rates of up to 79% were portrayed in the media (Portanova *et. al.* 2017). At the same time as this portrayal was impacting public perception, professional perceptions of CPR were shifting.

National confidential enquiry findings (NCEPOD 2012, p. 6) and national audit data (NCCA 2015, p. 12) as well as judicial hearings (Havers 2014) had demonstrated harm to patients caused by Do Not Attempt Cardiopulmonary Resuscitation (DNACPR). The 2012 national confidential enquiry resulted in a report called "*Time to Intervene*", which reported the results of a structured review of 842 cases in English hospitals in which cardiopulmonary resuscitation (CPR) was attempted. The report described confusion regarding the concept of "do not attempt CPR".

This confusion was found to have caused the misuse of DNACPR forms, that is their over or under interpretation. Examples of this were reported in case studies within the report (Appendix 3, p. 157). The case studies described the harm suffered by patients. There were two categories of harm identified:

1. When a patient was denied a dignified death, because an inappropriate or futile attempt at CPR was made.
2. Death because of a failure to attempt CPR when it should have been attempted, as it would have been appropriate and likely to be succeed.

The "*Time to Intervene*" report was published in 2012, yet these types of harm continue to occur and have been reported repeatedly (Taubert & Baker 2020). This is despite a combined effort from the British Medical Association (BMA), Royal College of Nursing (RCN)

and Resuscitation Council UK (RCUK) to prevent harm by issuing guidance on decisions related to CPR in 2001 (BMA 2001).

The guidelines "*Decisions Related to Cardiopulmonary Resuscitation*" were revised in 2007 with further minor revisions in 2014 and 2016, the last major revision being the 2007 edition. All versions were published by the RCN (RCN, BMA & RCUK 2007, 2014 & 2015).

The national guidance referred to above has been deemed to be lawful in judicial review (Havers 2014). This means that there are certain legal absolutes regarding the concept of DNACPR in the UK. These include that DNACPR is not legally binding, and it applies to CPR only. Aligned to those legal absolutes the guidance sets out core principles. The principles for decisions related to CPR are:

- The person responsible for decisions related to CPR is the lead clinician at the time the decision is made (in advance or at the time of a cardiac arrest).
- The lead clinician may be a medical doctor or nurse.
- In all cases a decision must be made that is appropriate to the patient and context – *i.e.*, on a case-by-case basis.
- When no DNACPR form is completed there should be a presumption in favour of CPR.
- CPR should not be provided if it is unlikely to be successful or is not in the best interests of the patient (the risk of harm outweighs the likely benefits).
- DNACPR forms are not legally binding but should be respected provided:
    1. The patient had capacity when it was signed.
    2. The context within which the form was signed is the context in which the cardiac arrest has occurred.

These principles were reaffirmed by professional bodies and the resuscitation council in 2020 during the COVID 19 pandemic (RCUK 2020). This was in response to the recognised potential for DNACPR to cause harm to patients with COVID (Bloomer 2020).

Two high profile cases demonstrated that despite the publication of "*Time to Intervene*" and the national guidance avoidable harm continued to occur. One was a legal case taken by a patient's family and the other was a regulatory case against a nurse. The former was the case of the estate of Janet Tracey versus Cambridge University Hospitals NHS Foundation

Trust (Havers 2015) and the latter was the case of the Nursing and Midwifery Council (NMC) versus Skeats (NMC Online 2017).

Janet Tracey died on March 7th, 2011. Her family brought a case as they believed that the DNACPR form was placed without their or their mother's knowledge. They also felt the DNACPR was inappropriate being linked to her prior prognosis rather than her circumstances at the time. The High Court found in favour of the family and this prompted a reconsideration of how decisions about CPR should be discussed, made and recorded.

Skeats (NMC Online 2017) versus the NMC involved a nurse who correctly assessed that CPR would have been unsuccessful for a patient and decided to withhold it. The nurse accepted there was no DNACPR but said that the patient would not have wished to be resuscitated and that regardless, the patient was found dead. National guidance was supportive of nurses withholding futile CPR even in the absence of a DNACPR form. The NMC hearing however found against the nurse stating she was obliged, being a nurse, to administer CPR.

These cases went some way to establishing that there was a high human cost attached to the misuse of DNACPR in practice. MENCAP (a UK charity that works with people with a learning disability) published "*Death by Indifference*" a report into 74 deaths they believed were avoidable. MENCAP described a worrying trend of DNACPR being a "*constant feature*" in such cases (MENCAP 2012, p. 15). This report first rose the prospect that DNACPR could be both discriminatory as well as overinterpreted. When DNACPR is overinterpreted it can have an impact on elements of care other than CPR. One example was the death of Anne Clifford in July 2010 in which MENCAP noted that the patient was not moved to a high dependency area when she deteriorated because she was "DNR", *i.e.,* not for resuscitation.

The DNACPR form in this case (called a DNR) was for some reason overinterpreted to mean that more than CPR should be withheld. The patient's family and MENCAP maintained that if Anne had been transferred to a high dependency setting, she would not in fact have suffered a cardiac arrest and therefore would have survived the DNR form.

The fact of there being a risk of harm associated with DNACPR forms was therefore established, but what was the extent of exposure to the risk of harm? While the overall risk of harm is difficult to quantify some proxy markers give an indication of its scale. Between

July 2015 and July 2016 there were 284,000 in-hospital deaths in England (NHS Digital 2016, p. 1). The National Cardiac Arrest Audit (NCAA 2015, p. 3) data for the same year reported the rate of in-hospital cardiac arrest at 1.4 per 1000 patients. Given that the NCCA audits all cardiac arrests when an attempt at CPR was made, that would equal an approximate number of 398 attempts at CPR for the 284,000 deaths. Little is known about the 283,602 deaths when no attempt at CPR was made, there is no assurance that withholding CPR was justified in all instances.

As well as the human cost there is a financial cost associated with both categories of harm described earlier. When a patient is denied a dignified death there are the costs associated with the immediate resuscitation attempt and ensuing supportive care. When there is an avoidable death which could have been averted by an attempt at CPR, there are the costs associated with litigation and compensation.

In the UK where healthcare is free at the point of delivery it is difficult to cost a resuscitation attempt, unit prices for the consumables are not available. The consumables used are standardised internationally though and in countries where billing operates costings are available. It has been calculated that one attempt at resuscitation costs $200,000 USD (Liu *et. al.* 2011). This calculation excluded staff pay and any aftercare. Clearly it is in the interests of both patients and the NHS to minimise instances of futile CPR, while also ensuring CPR is performed well when indicated.

Chapter 2 the Evolution and Bioethics of DNACPR

2.1 The History of Do Not Resuscitate Orders

Cardiac arrest had not been defined prior to the phenomenon of chloroform related cessation of the heart during surgery in the 1950's (Acierno & Worrell 2007). The definition of cardiac arrest was intended originally to distinguish the iatrogenic (treatment related) cessation of the heartbeat from the natural cessation of the heartbeat in dying (And & Goerig 1995). Defining cardiac arrest was a milestone that determined when the heart stops beating, death should not be presumed to be the inevitable outcome. That, combined with the fact that closed chest cardiac massage (CCCM) was an option for resuscitation from 1960 linked cardiac arrest and CPR together (Safar 1989). The link endures and the first step

of current life support algorithms is to confirm cardiac arrest (Perkins *et. al.* 2015). This link has been questioned in recent years as being potentially flawed *i.e.,* not all cardiac arrests should be treated with CPR. In the 1990's this went so far as to consider the rights of people to die in which case a link between cardiac arrest and CPR would certainly be flawed in the minds of ethicists. Potentially violating the primary bioethical principle of autonomy.

A doctor Kevorkian was present at the death of one of his patients in 1990, having assisted them to end their life. It was reported in the New England Journal of Medicine (Conwell & Caine 1991) that while murder charges were brought against Kevorkian, they were dismissed as it couldn't be proved he had acted unlawfully. The history of the right to die was in stark juxtaposition to the history of CPR, particularly the inherent link created between cardiac arrest and CPR.

Reflecting then, the original definition of cardiac arrest was a witnessed, iatrogenic stopping of the heart during surgery. Over time this changed, and the changes relate mainly to the work of physicians like Safar (1989) who brought resuscitation out of the operating theatre (Acierno & Worrell 2007). Cardiac arrest and responses to it have since divided opinion. There are descriptions dating from the 1950's to 2020 that variously describe CPR as a theatrical cult, or a lifesaving intervention (Stephenson *et. al.* 1953).

Tomlinson & Brody (1990) published on the ethics of resuscitation around the time that recommendations were first made that CPR could be withheld without patient consent. Their critical observation was that it would be unethical to seek patient consent to withhold treatment from them if that treatment would be futile. The ethical debate on DNACPR gained public prominence at that time and the need for professional guidance became acute. Futility continues to be a fulcrum around which the debate revolves. Controversy has continued amid the COVID-19 pandemic. Several jurisdictions were forced to publicly rescind high profile DNACPR practices deemed by authorities to be unethical (Curtis *et. al* 2020).

2.2 The introduction of Resuscitation Guidelines

Internationally agreed guidelines for resuscitation were published in 2000 by the International Committee on Resuscitation (Monsieurs *et. al.* 2001). Before then, national committees had published their own guidelines (Handley *et. al.* 2005). The aim of these guidelines was to help healthcare professionals navigate the increasing number of decision points involved in life support. Common to all the guidelines were algorithms which simplified the guidance into flow charts. There are two current algorithms in the UK for adult life support, basic and advanced Figs 1 & 2.

Unresponsive and not breathing normally

Call 999 and ask for an ambulance

30 Chest compressions

2 Rescue breaths

Continue CPR 30:2

As soon as AED arrives switch it on and follow instructions

Fig 1. BLS algorithm, reproduced with the permission of RCUK

Resuscitation Council (UK) — GUIDELINES 2015

Unresponsive and not breathing normally

Call resuscitation team

CPR 30:2
Attach defibrillator/monitor
Minimise interruptions

Assess rhythm

Shockable (VF/Pulseless VT)

Return of spontaneous circulation

Non-shockable (PEA/Asystole)

1 Shock
Minimise interruptions

Immediate post cardiac arrest treatment
- Use ABCDE approach
- Aim for SpO_2 of 94-98%
- Aim for normal $PaCO_2$
- 12-lead ECG
- Treat precipitating cause
- Targeted temperature management

Immediately resume CPR for 2 min
Minimise interruptions

Immediately resume CPR for 2 min
Minimise interruptions

During CPR
- Ensure high quality chest compressions
- Minimise interruptions to compressions
- Give oxygen
- Use waveform capnography
- Continuous compressions when advanced airway in place
- Vascular access (intravenous or intraosseous)
- Give adrenaline every 3-5 min
- Give amiodarone after 3 shocks

Treat Reversible Causes
- Hypoxia
- Hypovolaemia
- Hypo-/hyperkalaemia/metabolic
- Hypothermia

- Thrombosis - coronary or pulmonary
- Tension pneumothorax
- Tamponade – cardiac
- Toxins

Consider
- Ultrasound imaging
- Mechanical chest compressions to facilitate transfer/treatment
- Coronary angiography and percutaneous coronary intervention
- Extracorporeal CPR

Fig 2. ALS algorithm reproduced with the permission of RCUK

Neither of the algorithms has an option to withhold or even stop CPR. This is because the aim of life support is to treat cardiac arrest to prevent death. An individual's right to die began to jar with the drive to increase the survivability of cardiac arrest within an interventionist medical community (Carr & Luth 2017). In Canada, reports emerged of families left distraught as resuscitation attempts were made on their terminally ill relatives (Innes & Wagner 1999). This was not unique to Canada and the distress associated with CPR perceived as inappropriate also impacted staff. A paper by Druwé *et. al.* (2018) reported the impact of inappropriate CPR on staff in 24 countries. Across all countries studied staff were found to often consider the appropriateness of CPR and over half of the participants (58%, n = 2955) reported moral distress as a result.

The norm in the 90's was that decisions not to resuscitate must be made by the senior doctor in charge (Baskett 1993). The reality is that senior doctors are rarely present when cardiac arrests take place. This was the case during the COVID-19 pandemic in 2020 when remote consultation was advised (HSE 2020, p. 12). The implication of these points is that nurses operating resuscitation guidelines were unable to withhold CPR, and once they began to resuscitate the algorithms had no exit point.

Resuscitation guidelines are clearly provided to aid successful resuscitation. They aim to avoid death and so naturally they are a loop that continually prompts the rescuer to address the reversible causes of cardiac arrest. Given this aim, the loop approach is not flawed and there is international consensus as to its efficacy (Jacobs *et. al.* 2004). The difficulty has never been with the guidelines and algorithms themselves, but rather the decision when and when not to use them in the first place.

Accepting that the focus of the resuscitation guidelines will always by necessity be survival, guidance on other decisions related to CPR was created separately. Guidance was first published in 2001 (BMA 2001) and was most recently updated in a 2016 revision of the 2014 third edition of "*Decisions Relating to CPR (cardiopulmonary resuscitation) Joint Guidance from the BMA, Resuscitation Council (UK) and Royal College of Nursing (RCN)*" (RCN, BMA & RCUK 2014 & 2016).

2.3 The Evolution of DNACPR

Orders not to resuscitate emerged when the universal application of CPR to treat cardiac arrest was identified as inappropriate in certain circumstances. The history of these orders was linked to the dependence on the medical profession as decision makers (Baskett 1993). Language evolved over time and varied from country to country with the "no code" and "do not resuscitate", "DNR", in the United States, and "not for resuscitation", "NFR", and "do not attempt resuscitation", "DNAR", in Europe.

The New England Journal of Medicine published the first paper on orders not to resuscitate in 1976 (Rabkin *et. al.* 1976). This was sixteen years after closed chest cardiac massage and other interventions were combined as basic life support (BLS). Forty years later in the same journal Burns & Tourg (2016) reviewed four decades of DNR use since the original paper. A comparison between the 1976 and 2016 papers provides a comprehensive insight into DNACPR history.

Both the 1976 and 2016 papers recognised that orders not to resuscitate were controversial in that they reversed the notion of consent. Beforehand, consent was always sought to do something, but in this case consent was being sought to withhold something. The controversy surrounding orders not to resuscitate was no less evident in the 2016 paper than it was in 1976. Rabkin (1976) in his original paper, and a later interview still available to view online (Open Paediatrics 2017) described an unrestrained use of CPR in the 1970's. Burns & Tourg (2016) noted a view at the time that CPR was simple and miraculously effective.

Based on a recommendation made by the American Medical Association in 1974 that decisions not to resuscitate should be recorded, Rabkin (1976) set out to write a policy. In his 2017 interview he described the modern practice in the United States of asking every patient admitted about their resuscitation preference as a perversion of that original DNR policy. The original policy, not a form, sought to ensure a decision was made about resuscitation in advance when required. It was recognised that there was a risk of harm and so there were two checks and balances.

Firstly, all care givers involved with the patient had to agree with a decision not to resuscitate, and a second opinion from a physician outside the team was required.

Rabkin (1976) sought to mitigate the risk of harm related to the excessive application of CPR. He described this risk as being particularly high in cancer patients and gave a harrowing account of a terminally ill patient in his nineties suffering fractures during resuscitation. By 2016 the later DNR review paper stated that the appropriate care of the dying was still a source of controversy. It was noted that due to the evolution of end-of-life care, a decision about CPR was just one of many end-of-life decisions. Burns & Tourg (2016) described how the palliative care movement recognised dying as a process in which cardiac arrest was only a single final event. The CPR decision was described as only a footnote in the overall end-of-life care plan.

End-of-life care plans then began to evolve. These care plans were focused on what to do for a patient. This contrasted with orders not to do something, for example CPR. It was also recognised in the UK that DNR as an order was flawed. It was first changed to Do Not Attempt Resuscitation (DNAR) to reflect that resuscitation is not always possible and the best that can be done is an attempt. Later this was changed again to Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) to differentiate from other types of resuscitation. Despite these attempts to frame DNACPR decisions as related to CPR only, the risk of harm persisted during end-of-life care. In fact, the end-of-life care plans themselves became implicated as posing a risk of harm.

2.4 The Bioethics of DNACPR

Beauchamp and Childress published *The Principles of Biomedical Ethics* in 1979 (Beauchamp and Childress 1979). The four principles approach to bioethics have since become the common ground on which clinicians seek to make ethical choices. The prevalence of this approach to bioethics is so widespread that it has been described as canonical (Dale 2023). The four principles within the framework are autonomy, beneficence, nonmaleficence, and justice (discussed further in Section 8.2.2). Dale (2023) noted that this well-established approach to bioethics has a notable weakness in that it does not explicitly guide actions.

There are examples of how in medical and nursing practice there have been attempts to overcome this potential weakness in the four principles approach to bioethics. This has included structured approaches to end of life care which while based on bioethical principles, also guide action.

In the late 1990's the Royal Liverpool Hospital developed a palliative care pathway for the care of terminally ill cancer patients. The concept was to spread the hospice model of care to other settings and originally was reviewed positively (Jack *et. al.* 2003). Just ten years later the Liverpool Care Pathway was being studied as a failure (Knights *et. al.* 2013). It was treated in the media as a national scandal, a tick box exercise that was un-survivable even if your cancer was. In the intervening period MENCAP (2012) had reported their series of case studies referred to in the introduction (earlier on p. 6), highlighting how people with learning disability had not survived discriminatory DNACPR forms.

During the COVID-19 pandemic the NHS in England was forced to issue a statement clarifying that people's disabilities or age were not to be the primary factors in CPR decisions (NHS England 2020, p.1). The previous discourse on the need to allow a dignified death was being quickly replaced with a discourse on people's right to be resuscitated in the context of the pandemic and an overstretched health service.

Between case law, national guidance, and professional obligation there is a difficult space for nurses to navigate. The principles of the national guidance on decisions related to CPR are complex to apply in practice. But their application from a nursing perspective must also take cognisance of the requirements of the Nurses Act via the NMC Code (NMC 2020b). While there is no specific nursing guidance, medical guidelines are clear that patients cannot demand treatment that would be inappropriate or futile (McCrossan & Siegmeth 2017). At the same time, patients do have a right to make decisions that could cause them harm, including to refuse treatment. Conflicting rights and duties make DNACPR a challenging concept.

2.5 Summary of DNACPR Evolution

DNACPR evolved as a response to the widespread use of CPR in the 1950's and 60's. CPR itself was a new concept used to treat a newly defined condition, cardiac arrest. The intention of DNACPR was to prevent invasive attempts at resuscitation that would prolong dying. There was a potential for CPR to cause harm by interrupting the normal dying process when there was no chance of survival. Orders not to resuscitate were developed to mitigate the risk of harm associated with futile CPR.

Chapter 3 Literature Review

A scoping review was carried out to answer the following research question: 'What is the evidence on nurse understanding of DNACPR?'. Scoping reviews are more suited to answering research questions on identifying the size and nature of the evidence base and evidence gaps than systematic reviews (Arksey & O'Malley 2005; Noble & Smith 2018; Munn *et. al.* 2018). Mays *et. al*. (2001) noted that scoping reviews are particularly valuable when a body of evidence has not been extensively reviewed or is heterogeneous, as is the case of nurse understanding of DNACPR.

3.1 Scoping Review Strategy

The scoping review followed the procedural steps described in Arksey & O Malley's (2005) methodological framework for scoping reviews.

1. Identify the research question

2. Identify the relevant studies

3. Study selection

4. Charting the data

5. Collating, summarising, and reporting the results

The scoping review was checked for robustness against the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Scoping Review Checklist (Trico *et. al.* 2018). The checklist developed in 2018 requires that,

- The review is identified as a scoping review, as above

- A summary of the background, rationale and charting methods is provided

- Data sources and an electronic search strategy is provided (Table 1 & 2, p.18 below)

- A description of how the data was synthesised is provided – by theme in this case

- The number of evidence source screened is provided with rationale for exclusion (Appendix 4, p. 159)

- A discussion including an overview of the main concepts and themes related to the review objectives is presented

- Conclusions including a general interpretation of the results related to the review objectives, as well as potential implications is presented

- Limitations to the scoping review are identified

The research question for the study arose from the identification of a problem in practice, that question being what do nurses understand about DNACPR? The question for the scoping review in turn was 'What is the evidence on nurse understanding of DNACPR?'.

To identify the relevant studies, the search strategy was designed to be highly specific, and the core search terms were "DNACPR", "understanding" and "nurse". Alternative terms for these three core search terms were then added. Colleagues in RCUK and in the USA and Australia were consulted to ensure the list was comprehensive. Further search terms were added to take account of international phraseology for example, "no code" was added on advice from an American nurse. The search was conducted in CINAHL and MEDLINE, without a temporal filter (no earliest set publication date, and including publication dates up to and including June 2022). The searches and results are below in Table 1.

Table 1 Scoping Review Database Searches

Search No	Terms	Results
#1	"DNACPR" or "DNR" or "DNAR" or (Do not Resuscitate) or (No ADJ1/N1 code)	11,692
#2	"CPR" or (Cardi* resuscitation)	73,366
#3	"Nurs*" or "Healthcare Professional*" or "staff"	3,838,023
#4	"understand*" or "perception*" or "attitud*" or "Opinion*"	3,420,665
#5	#1 or #2	82,454
#6	#5 and #3 and #4	1,241

The results for the individual core search terms were high volume. On combination however 1,241 papers were identified of which 110 were selected for retrieval after abstract screening, 15 of which were included in the scoping review. Abstract screening was performed using a screening tool (Table 2).

Table 2 Abstract Screening Tool

Q1	Does the study aim include a question about DNACPR (or equivalent term)?	No = exclude Yes = continue
Q2	Does the study methodology indicate a non-nursing population only?	Yes = exclude No = continue
Q3	Is this a duplicate record?	Yes = exclude duplicate No = continue

Study selection involved defining some criteria for inclusion and exclusion. The inclusion criteria were:

- Papers in peer reviewed journals, the grey literature on the subject being unlikely to yield answers to the scoping review question. This was based on the use of the grey sources on decisions related to CPR to set the background in Chapter 2.
- Papers reporting on studies in which the participants were nurses.
- Papers with a focus on DNACPR and CPR

The exclusion criteria were:

- Papers with a sole or primary focus on CPR as opposed to DNACPR.
- Papers not written or available in English or French.

The inclusion and exclusion criteria were applied to 110 papers which were retrieved following abstract screening. From this, 15 were selected for data charting. The main reason for exclusion of articles was that they focused solely on nurse understanding of CPR (as opposed to DNACPR).

This was most frequently in the context of nurse ability to correctly administer CPR, or family presence during CPR. Next most commonly a mention of DNACPR was incidental within studies focused on broader aspects of advanced care planning or palliative care. As recommended in the PRISMA checklist for scoping reviews the papers excluded are listed at Appendix 4, p. 159.

3.2 Scoping Review Findings

The next step in the scoping review framework described by Arksey & O Mahony (2005) is charting the data (see Tables 3, p. 21 and 4, p. 30). The fifteen papers were charted by author, date, country, area of enquiry (including clinical setting), population, study design and data collection tool. By way of synthesis the findings were also charted by theme, into four themes. This was conducted manually by making margin notes in each paper and grouping them iteratively.

The four themes were,

- Responsibility for DNACPR decisions

- Understanding of DNACPR

- Factors influencing nurse understanding of DNACPR

- Impact of DNACPR

The fifteen papers included eleven quantitative studies (Godkin & Toth (1994), Konishi (1998), Manias (1998), Thibault-Prevost & Hodgins (2000), Giles & Moule (2004), De Gendt *et. al.* (2007), Park *et. al*. (2011), Goniewcz *et. al.* (2013), Al Khalaileh (2014), Mogadasian *et. al.* (2014) and Gul *et. al.* (2020). There were two qualitative studies (Pettersson *et. al.* (2014) and Brysiewicz & Nankundwa (2017) one mixed methods study, Kelly *et. al*. (2021) and one systematic review (Raoofi *et. al.* 2021).

There were two Iranian (Mogadasian *et. al.* (2014) and Raoofi *et. al.* (2021)) and two Canadian papers (Godkin & Toth (1994) and Thibault-Prevost & Hodgins (2000)). There was one paper from each of the USA (Kelly *et. al.* 2021), Turkey (Gull *et. al.* 2020), Rwanda (Brysiewicz & Nankundwa 2017), Sweden (Pettersson *et. al* 2014), Jordan (Al Khalaileh 2014), Poland (Goniewcz *et. al.* 2013), South Korea (Park *et. al*. 2011), Belgium (De Gendt *et. al.* 2007), the UK (Giles & Moule 2004), Australia (Manias 1998) and Japan (Konishi 1998). The one British paper by Giles & Moule (2004) predated current guidance and case law.

The country of origin was significant because DNACPR for nurses in Britain exists within the specific framework of UK legislation. This begs the question, why include papers from outside the UK? There are a number of reasons why on balance excluding non-British studies would have limited rather than enhanced the scoping review. Firstly, due to the scant availability of evidence the scoping review would have been reduced to one paper (Giles & Moule 2004). Secondly, the international research gives an insight into how DNACPR is understood in some of the many countries from which our multicultural workforce originates. Lastly, while the countries from which the studies came vary in many ways the physiological and bioethical basis of decisions related to CPR transcend many of those cultural variations.

The papers sought to investigate either the perspectives, attitudes or experiences of nurses related to DNACPR, see Table 3 below which charts the areas of enquiry.

Table 3. Charting of Papers in Scoping Review

Author	Country	Area of Enquiry	Population(s)	Design*	Data Collection*
Kelly et. al. 2021	USA	Nurse perspectives on do not resuscitate orders	N = 35	Mixed methods exploratory	Survey & open-ended interview
Raoofi et. al. 2021	Iran	Nurse attitudes towards do not resuscitated orders	NA	Systematic Review	Systematic review protocol
Gul et. al. 2020	Turkey	Nurse opinion on do not resuscitate orders	N = 1250	Quantitative descriptive	Online survey
Brysiewicz & Nankundwa 2017	Rwanda	Lived experiences of ICU nurses of DNR orders	N = 6	Phenomenological	Semi structured interview
Pettersson et. al 2014	Sweden	Oncology nurses attitudes towards DNR	N = 15	Qualitative descriptive	Semi-structured interview
Mogadasian et. al. 2014	Iran	Muslim Nurses attitudes to DNACPR	N = 306	Quantitative comparative	Questionnaire
Al Khalaileh 2014	Jordan	Attitudes to and experience of DNR	N = 111	Quantitative descriptive	Questionnaire
Goniewcz et. al. 2013	Poland	Emergency Nurses Opinion of DNR	N = 82	Quantitative non-parametric	Questionnaire
Park et. al. 2011	South Korea	ICU Nurses perceptions and attitudes to DNR	N = 252	Quantitative descriptive	Questionnaire
De Gendt et. al. 2007	Belgium	Nurse attitudes towards DNR in geriatric departments	N = 81	Quantitative descriptive	Questionnaire
Giles & Moule 2004	UK	Nurse attitudes and experiences of DNACPR	N = 78	Quantitative non-parametric	Questionnaire
Thibault-Prevost & Hodgins 2000	Canada	Critical care nurses perceptions of DNR status	N = 405	Quantitative descriptive	Questionnaire
Manias 1998	Australia	Nurse attitudes and experiences of the DNR decision	N = 285	Quantitative comparative	Questionnaire

Konishi 1998	Japan	Nurses attitudes towards DNR policy	N = 127	Quantitative descriptive	Questionnaire
Godkin & Toth 1994	Canada	Resuscitation decision making in long term care	N = 54	Quantitative descriptive	Questionnaire

The CASP (2013) systematic review checklist and the National Institute for Health and Care Excellence (NICE) quality appraisal checklists for qualitative and quantitative studies (NICE 2012) were used to assess quality. These tools were chosen as best fitting the papers having also considered the quantitative quality assessment tool from The Effective Public Health Practice Project (EHPP 2012) and Centre for Evidence Based Medicine critical appraisal of qualitative research checklists (CEBM 2020).

The eleven quantitative papers rated well on quality against the NICE checklists. That is to say that each paper had a (++) rating. This being when "++" equated to most of the checklist criteria having been fulfilled, and where they had not been fulfilled the conclusions having been unlikely to have been impacted. This being because the criteria assessed indicated in each case;

- There was clarity of purpose, there was a clear statement of the research aims.
- Regards rigour of design & methodology, there was coherence between the stated aims and the reteach designs and methods described.
- Data collection was well describe, including the data collection instruments.
- Trustworthiness;
  - The role of the researcher was described and acknowledged in each case.
  - The context in which the research was being carried out was made clear.
  - Reliability was reflected with clear statements on limitations.
- Data analysis was well described in each case.
- Findings were well presented, in keeping with the stated aims, grounded in existing literature and with reference to implications and future research.

The quantitative approach used by the researchers to study nurse experiences meant consideration of the papers with both the quantitative and qualitative checklists was

required. The solely quantitative approach may not have been the best fit for the research questions which were exploratory in most cases. Variations in quality, although not wide, related to sampling methods and data collection. All eleven quantitative studies used a questionnaire to gather data but only one of those, Manias (1998) validated their questionnaire. In the other quantitative papers, there was enough description of the design of the questionnaire and supporting rationale to have confidence in the findings. This was primarily done by the authors describing how they had used or adapted the original questionnaire developed and validated my Manias (1998). Giles & Moule (2004) for example noting "This research adapted the questionnaire used in an earlier study by Manias (1998) as an approved tool, having both content and construct validity".

There were limitations to the sampling in some studies. This was not with the planned sampling method per se, but with the end sample due to the way in which the recruitment was done. Most of the studies used convenience or purposive sampling within a region (e.g., Flanders as in De Gendt *el. al.* 2007) a single hospital (as in Kelly *et. al*. 2021) an individual hospital department (*e.g.,* an Emergency Department as in Goniewcz *et. al.* 2013 or an Intensive Care Unit as in Park *et. al*. (2011) and Brysiewicz & Nankundwa 2017). The disparate sampling and care settings of the populations limit the extent of the conclusions that can be drawn generally from the body of evidence. This is because the evidence pertains to different settings, countries, and populations. Without somehow accounting for the differences between these, generalising is problematic.

Two of the studies did have an internal comparative element each having recruited two samples. The Iranian study aimed for an equal quota of Shiite and Sunni Muslims – but the participants were 61% Sunni. The Australian research aims included a question on the impact of nurse awareness of DNACPR policy and so compared populations from hospitals with and without a policy.

The Canadian and the British researchers distributed a set number of questionnaires, 100 and 120 respectively. It was unclear what the total population size was in either case, so it was difficult to determine exactly how representative the samples were. Using descriptions of the settings where the questionnaires were distributed though, it can be ascertained that

the sample sizes would have been somewhat representative of the nursing workforce in each case.

The most recent studies were a mixed-methods study by Kelly *et. al.* (2021) and a systematic review by Raoofi *et. al.* (2021). The aim in the Kelly study was to explore nurse perspectives on DNACPR, and in Raoofi to evaluate nurse attitudes to DNACPR. Both found evidence that DNACPR orders are perceived by nurses as ambiguous. Both studies reported that nurses were positive about the potential of DNACPR orders if they are understood and used correctly. Raoofi reported that across the ten papers systematically reviewed nurses were positive and willing to be involved in DNACPR decisions. Having included some of the same papers in this scoping review however it was found nurses also had negative attitudes to DNACPR, particularly in studies from outside North America or Europe (Konishi 1998, Mogadasian *et. al.* 2014, Brysiewicz & Nankundwa 2017 and Gul *et. al.* 2020). The findings from all the studies can be considered in four themes which are responsibility for DNACPR, understanding of DNACPR, the impact of DNACPR and factors influencing nurse understanding of DNACPR.

3.2.1 Responsibility for DNACPR Decisions

The findings regarding responsibility were mixed with some studies finding that the nurses believed medical doctors were responsible for decisions related to CPR (Manias 1998, Giles & Moule 2004, Brysiewicz & Nankundwa 2017, Al Khalaileh 2014). This would present an obvious challenge in settings were medical doctors are not always present. That is perhaps why the only study in residential rather than acute care (Godkin & Toth 1994) found that participants "often" withheld CPR even in the absence of a DNACPR order. The respective roles of nurses and doctors in decisions related to CPR has been reported to be understood as medically led throughout the period spanned by the evidence. To be expected maybe, given that in the countries where the research was done their policy evolved over time. For example, in the case of Manias (1998) there was no national guidance at that time in Australia, but in 2015 new guidance was introduced stating DNACPR must be signed by the doctor in charge (ARC & NZRC 2015). Regards Giles & Moule (2004) the nursing role in decisions related to CPR had not been specifically addressed in the extant 2001 guidelines at

the time (BMA 2001). Since then, the guidance was changed and the role of the nurse in decisions related to CPR has been better defined. Shared interdisciplinary role clarity is important in practice for effective communication and teamwork. Kelly *et. al.* (2021) found that nurses experienced tension in their interaction with medical staff when there were differences in role expectation regarding a decision not to resuscitate. Giles & Moule (2004) found nurses believed that they should be consulted about DNACPR decisions, but the majority felt they were not always involved. As far back as 1998 nurses in the study by Konishi (1998) identified decisions not to resuscitate as a cause of conflict between nurses and doctors.

The role of policy and guidelines was explored and was found to be viewed by nurses as giving role clarity. While some studies recommended policy or guidelines as a means of addressing findings of confusion about DNACPR, the studies that researched the impact of policy found it had little or no impact on nurse understanding. Thibault-Prevost & Hodgins (2000) and Giles & Moule (2004) both recommended policies to address the ambiguity they found characterised DNACPR.

De Gendt *et. al.* (2007) and Manias (1998) found that neither presence nor awareness of policy improved nurse understanding of DNACPR. Manias found that nurses who were unaware of their hospital DNACPR policy, nurses working in hospitals that had no policy, and nurses who were aware of DNACPR policy had similar levels of understanding. De Gendt (2007) noted there were no statistically significant differences in nurse adherence to DNACPR between nurses working with or without a policy in place. It was perhaps the case that for policy to have any impact on understanding nurses needed a pre-existing knowledge base. De Gendt (2007) recommended guidelines to achieve this, although it is unclear from the evidence if guidelines would have a greater impact than policy.

The role of the patients and their family were explored in the research. Three studies found nurses believed that patients and families should take on some responsibility for CPR decisions (Godkin & Toth 1994, Park *et. al.* 2011 and Gul *et. al*. 2020). Thibault-Prevost & Hodgins (2000) found nurses believed the family could override a DNACPR decision. Mogadasian *et. al.* (2014) found that nurses had a role in representing the family when decisions about CPR are being made. Kelly *et. al.* (2021) described the scenario of families

revoking a relatives DNR order because of the risk it might result in suboptimal care. Participants reported that the variance in family interpretation meant that structured involvement of the family is required, one participant at interview noted "*DNR does not necessarily mean they do not want treatment or are ready for end of life. A palliative care consult needs to be placed before taking palliative care as a priority. A meeting needs to be done with the patient and family regarding what they want*." (Kelly *et. al.* 2021, p. 29). A greater understanding of the impact of family wishes on nurse understanding of DNACPR is required.

3.2.2 Purpose of DNACPR

There is evidence from the scoping review about what nurses understand the purpose of DNACPR is. There were findings that indicated nurses do not understand what the concept means as recently as Kelly *et. al.* (2021), dating back to 2000 when Thibault-Prevost & Hodgins (2000) found nurses described DNR as ambiguous. This study also found nurses linked DNR with euthanasia. Understanding that DNACPR was in effect a decision to allow patients to die was found in other studies too.

In Rwanda where DNACPR is a relatively new concept Brysiewicz & Nankundwa (2017) found respondents understood that the patients subject to DNACPR had no prospect of survival "'*When a patient is designated with a DNR order, I feel not comfortable to discover that really there is no hope that the patient will recover … he is really departed*.'(Brysiewicz & Nankundwa (2017, p. 21).

Nurses were found to understand decisions not to resuscitate as an ethical question, one of balancing risk and benefit. Pettersson *et. al.* (2014) interviewed fifteen oncology nurses and found that the theme of balancing "harms and goods" was reflected across all the interviews. The researchers found that the participants understanding was guided by a sense of what was morally right. Morality and the drive to do the right thing was found to shape nurse understanding in other studies. Polish researchers found DNACPR to be understood as a social and moral problem (Goniewcz *et. al*. 2013). This was related to

emergency nurse's perception that the last stages of disease were routinely used as a justification for DNACPR. Many of the same respondents (69.5%) believed there was always an obligation to treat their patients. These two findings are an example of bioethical principles being in conflict. These findings are in the context of the limitations of these studies, including the fact that none related to actual patients and real-world CPR decisions.

There was evidence that nurses variously understood DNACPR to be positive and beneficial, and negative and harmful. De Gendt *et. al.* (2007) and Park *et. al.* (2011) both found nurses understood decisions about CPR as rights based. Patients having the right to refuse resuscitation in advance. This right potentially being at odds with findings in other studies, such as Goniewcz *et. al* (2013) that nurses believe there is always an obligation to treat. Some research found nurses did not believe DNACPR had any potential to be of benefit. Mogadasian *et. al.* (2014) found nurses disagreed that DNACPR could prevent suffering.

Nurses were found to understand DNACPR as a legal issue in some studies. Nurses reported being concerned about the legal consequences of decisions not to resuscitate. In 1994 Godkin & Toth concluded that DNACPR places nurses in a legally untenable position resulting from conflicting duties. Manias (1998) noted that nurses faced legal as well as ethical issues in respect of DNACPR and that a disconnect between policy and legislation was a compounding factor.

More recently respondents to Thibault-Prevost & Hodgins (2000) did not identify legal considerations a s complicating factor of their decisions not to resuscitate. Some of the variance in findings may be linked to the legal standing of DNACPR being different in each country. In Turkey where DNACPR is illegal at the time of writing Gul *et. al.* (2020) found that nurses viewed withholding CPR as being of benefit sometimes, but they would not withhold CPR because of disciplinary consequences. A greater understanding of the influence of legal considerations on DNACPR might improve practice.

3.2.3 The Impact of DNACPR

The literature suggests that there is a risk of harm from DNACPR forms due to their overinterpretation. There is evidence that DNACPR has impacted on care other than CPR. In

the Korean study by Park *et. al*. (2011) nurses were found to believe that some care *e.g.*, Central Venous Pressure (CVP) monitoring should be discontinued when a DNACPR is put in place. This could make the chances of surviving a DNACPR form less, even if the critical illness itself was survivable. Nurses in the study by Goniewcz *et. al.* (2013) reported that DNACPR was interpreted as a withdrawal of all medical care. Pettersson *et. al*. (2014,p. 908) found nurses experienced DNACPR as hindering good nursing care saying for example "*it is possible that someone's reaction would be ''now that there's a DNR, we can relax, we don't need to do so much*". The ICU nurses interviewed by Brysiewicz & Nankundwa (2017) recounted similar experiences reporting that interventions such as vital sign monitoring, parenteral nutrition and even pressure area care are discontinued based on DNACPR.

Kelly *et. al.* (2021) found the consequences of DNACPR included "shifts in care" and varying responses to patient deterioration. This overinterpretation, and varied interpretation could stem from persisting misunderstanding of DNACPR, or even a fundamental flaw in the concept.

DNACPR has been shown to impact nurses as well as patients. The impact has been found to include moral distress (Brysiewicz & Nankundwa 2017) and stress (Pettersson *et. al.* 2014, Kelly *et. al.* 2021). The level of stress was reported to increase when there was conflict between patient wishes and their resuscitation status, or a disagreement between colleagues. A shared understanding of DNACPR might reduce the risk of such disagreements and prevent stressful situations arising.

3.2.4 Factors Influencing Nurse Understanding of DNACPR

The least well evidenced aspect of DNACPR across the body of research was any connection between nurse related variables and understanding of the concept. Two nurse variables were found to have a potential impact, speciality and culture. Speciality referred to the clinical area the nurse works in, and culture to practice in a specific country.

Konishi (1998), Mogadasian *et. al.* (2014) and Raoofi *et. al*. (2021) all found that culture was reported by nurses to impact attitudes to DNACPR. But these connections were not

established statistically or in any direction. Konishi (1998) surveyed nurses in a Japanese hospital to determine if they would support the implementation of a DNACPR policy. The majority (80%) said no, citing most commonly it would not be feasible. The primary reason identified for this was the culture of group and family decision making in Japan. That was rooted in contemporary Japanese culture described as "*a blend of the various influences of Shintoism, Confucianism, Buddhism, Taoism and Catholicism*" Konishi (1998, p. 225). The prospect of reducing the decision about CPR to a matter of policy was seen as reductionist, undermining an established way of making decisions.

Muslim nurses also felt DNACPR was contrary to their culture (Mogadasian *et. al.* 2014). In that case the contradiction between culture and decisions not to resuscitate was reported as faith based. The nurses reported that divine providence and the will of Allah was an important factor.

There is some evidence on how the area the nurse works in might influence their understanding of DNACPR. These findings included some descriptive findings as with the cultural element above, but also some non-parametric analysis. Thibault-Prevost & Hodgins (2000) found a correlation ($r = .09$, $p = .05$) between years of critical care experience and input into DNR decisions, suggesting medical staff may be more willing to seek input from experienced nurses. Giles & Moule (2004) found that medical nurses rated their experience of DNAR more positively than surgical nurses ($\chi2=18\cdot93$, $p<0\cdot01$). Other than this there continues to be a lack of evidence on which nursing attributes impact understanding of DNACPR, and no evidence on how specifically that might impact risk of harm.

3.3 Charting the Literature by Theme

The timespan of the literature was from 1994 to 2021. The evidence demonstrates that despite the passage of time similar issues were found throughout the 27-years. Issues included confusion about the meaning and purpose of DNACPR along with a lack of role clarity. The lack of role clarity, and the identification of tension between medical and nursing staff may have implications in practice. The findings related to the role of nurse and physician could also have impacted the regulation of the professions. In 2019 for example, there were 311,341 doctors (GMC 2021, p. 2) and 699,854 nurses NMC (2020a, p. 4)

registered in the UK. The medical regulator held 1532 investigations that year and the nursing regulator held 1404. While 3.7% of those doctors were struck off, 11.2% of the nurses were. Fitness to practice hearings in nurse regulation often related to the more subjective matters of scope of practice, responsibility, and competence.

The impact of DNACPR on patients was found to be potentially harmful, this being most likely when it was misunderstood. It is of note however that none of the researchers studied real DNACPR situations. A summary of the findings by theme is charted below in Table 4.

Table 4 Scoping Review Charted by Theme

Author	High level Conclusion	Responsibility for DNACPR	Understanding of DNACPR	Influences on DNACPR	Impact of DNACPR
Kelly et. al. 2021	Variation in interpretation has unintended consequences	Differences in role expectation causes tension	Lack of clarity on what DNR means		No code status means "palliative care only"
Raoofi et. al. 2021	Nurses attitudes to DNACPR broadly positive	Physicians most commonly responsible		Race, religion, and country influence DNR	
Gul et. al. 2020	DNR leads to ethical dilemmas	Patients families must participate	DNR is illegal		
Brysiewicz & Nankundwa 2017	DNR Orders cause nurses distress	Only physicians can make DNR decisions	DNR is overinterpreted		DNR Orders prevent good nursing care
Pettersson et. al 2014	Balancing "harms and goods" main theme / aim	Must be written / documented by doctor	Experience in years brings understanding		DNR can "hinder" nursing care
Mogadasian et. al. 2014	Nurses have a negative attitude to DNR	Nurses role is to represent patient/ family	DNR does not prevent suffering	Culture can impact DNR	DNR may cause legal problems for nurses
Al Khalaileh 2014	Written DNR required to prevent confusion	The physician in charge is responsible for DNR	Experience and educations not linked with understanding		
Goniewcz et. al. 2013	DNR is a "social and moral problem"	The attending physician is responsible	Unclear when DNR should be used		Can result in "all medical care" being withdrawn

Park et. al. 2011	The right to refuse CPR should be respected	Patient preference was primary driver	DNR is overinterpreted		Active monitoring can be withdrawn
De Gendt et. al. 2007	Standardised guidelines on DNR required	Nurses don't have a defined role in DNR	Policy did not improve understanding		Prevents "rash" decisions at cardiac arrests
Giles & Moule 2004	Policy is required to standardise DNAR Decisions	Nurses should be "consulted" on DNAR decisions	DNAR must be recorded in both medical and nursing notes	Medical nurses had better experiences than surgical	
Thibault-Prevost & Hodgins 2000	Policy is required to standardise DNR Decisions	Physicians and families can override DNR	The term DNR was found to be ambiguous	Years of ICU experience linked to DNR input	Nurses linked DNR with euthanasia
Manias 1998	Nurses have positive attitudes to DNR	Physicians solely responsible for DNR decisions	Policy was not impactful on understanding		Majority of nurse experience of DNR "frustrating"
Konishi 1998	Nurses have negative attitudes to DNR	DNR decisions are a role for the physician		Culture can impact DNR	DNR caused conflict between nurses and doctors
Godkin & Toth 1994	DNR status increases with age	Patient & family should have a primary role	Level of experience of CPR did not impact DNR practice	Patient age influences DNR status	CPR often withheld without a DNR order in residential care

3.4 The Evidence Gap

The findings above were presented descriptively in most cases. There was little statistical analysis of what nurse related factors influence understanding of DNACPR. There are gaps in this evidence in terms of what variables are associated with understanding DNACPR and how that impacts risk of harm. Because there was no analysis related to the impact of DNACPR no cause-and-effect relationship could be inferred. None of the studies related to real word decisions about CPR. The specific gaps in the evidence are.

- There are no studies and so no evidence on real-world DNACPR use in nursing in the UK.
- While there are studies exploring nurse attitudes to DNACPR none to date established a link between nurse related variables and risk of harm.
- The increasing age of the patient may be reflected in nurse decision making about DNACPR, but why this is has not been evidenced.
- There may be a risk of harm from DNACPR forms associated with the withdrawal of treatment other than CPR.
- There are no UK studies available since UK guidance on DNACPR was updated in 2016 (RCN, BMA & RCUK 2016).

There are no studies on the consequences for nurses when decisions about CPR conflict with codes of practice e.g., the NMC Code (NMC 2020b).

3.5 Summary of Scoping Review

The themes in the literature point to variations in nurse understanding of DNACPR, its purpose and who is responsible for making decisions. That could have a range of potential impacts, perceived as positive or negative. It is proposed here that the issue around which the variations across the themes revolve is essentially bioethical. What nurses consider right with respect to DNACPR, versus what they consider wrong is what ultimately impacts patients. This means right and wrong in a bioethical sense as opposed to clinically. If a nurse considers it morally right that CPR is always attempted, this might drive their actions more than policy.

Considering the obligation that nurses must practice ethically, it might be preferable that their actions are guided by a skilled assessment of what the right thing to do is in a given situation. A professional freedom to navigate situations as they arise requires policy that guides not directs. Does the nurse's autonomy to do what they believe to be right mean that they can override policy when their professional assessment deems necessary? The scoping review did show that nurses are motivated to practice ethically, doing the right

thing for patients based on their understanding of what DNACPR is for. The conclusion of the scoping review is that nursing actions may be driven this way as a product of the bioethical theory underpinning their practice. The principles being autonomy, beneficence, nonmaleficence, and justice. However, there remains a gap in knowledge about how nurses use DNACPR and navigate CPR decisions at the moment of cardiac arrest.

This is particularly so with respect to evidence related to real-world CPR decision making by nurses in the UK, for example those documented in NMC hearings.

Based on the evidence gaps identified by the scoping review, research questions were finalised to produce evidence currently lacking in the literature:

1. What do nurses understand about DNACPR, and decisions related to CPR?

2. How do those understandings impact the care nurses provide and risk of harm to patients?

Chapter 4 Methods

4.1 Study Design

The study design was informed by the research questions and the researcher's philosophical and theoretical perspective. The researcher is a nurse and considers context to be an important basis for knowledge generation. The scoping review concluded that decisions about CPR are ethical in nature, and that nurses are motivated by wanting to do the right thing. Philosophically the most relevant school is deontology. Deon means duty and this philosophy is concerned with the intersection of duty and morality (Ten Have 2021, p. 403). In the deontological tradition acts are considered as being "good" or "bad", "right" or "wrong" (Gaus 2001, p. 27). In nursing, bioethical theory links this philosophy to the more navigable standards in the NMC Code (Horsburgh 2007, p. 168). The study was designed to foster a deeper understanding of the reality of DNACPR, beyond the directly observable. Epistemic contextualism was the perspective on creating new knowledge.

A mixed-methods design was chosen to study DNACPR from several perspectives, integrating the findings to help understand the concept better. This was because of the

evidence gaps identified in the scoping review. No real-world DNACPR use has been studied in nursing in the UK, and an un-researched data set was readily available to enable this. As a nurse, critical realist, and from the perspective of epistemic contextualism the design also reflected the researcher's position in relation to the research questions.

Mixed methods have often been described as pragmatic, however more recently these methods have been described as a "third way" that is a midpoint between positivism and constructivism that aligns well with realism (Gobo 2023). The midpoint between positivism and constructivism is described by Braun & Clarke (2021, p.65) as the epistemic contextualism referred to earlier. This treats epistemology as a spectrum, and likewise ontology is a spectrum.

Given the central position of contextualism on the spectrum from the perspective of knowledge generation, there is a methodological coherence with the central position of critical realism on the ontological spectrum and mixed methods as the methodological "midpoint" described by Gobo (2023). This is not at odds with the pragmatic choice of methods most likely to answer questions about a clinical practice problem in an applied health research context *e.g.* a clinical doctorate as distinct from a PhD.

The utility of realism as a foundation for mixed methods research as set out above has been demonstrated by other authors. Allmark & Machaczek (2018) noted that realist approaches can not only underpin mixed methods research in nursing but that such a grounding can actually have advantages over pragmatism. Those advantages stemming from that fact that realist approaches ask questions about what goes on beneath the surface in socially complex situations. This is why critical-realism was chosen to explore the aspects of DNACPR use by nurses beyond the directly observable.

While there is some evidence on what influences nurse understanding of DNACPR, no link has been established between nurse related variables and risk of harm. The mixed-methods approach was required to study both real-world DNACPR use by nurses in the UK and establish what nurse variables might be important for harm reduction A sequential design allowed the findings from phase one to be mapped to the questionnaire which comprised theoretical questions and hypothetical patient scenarios. The outputs from the reflexive thematic analysis also informed the scheme of statistical analysis for the quantitative data.

For example, by informing which variables were paired on opposite sides of Chi Square analysis.

Ingham-Broomfield considered the published literature on mixed-methods research in nursing (Ingham-Broomfield 2016). While differences in phraseology regards the various categories of mixed-methods designs exist, there are some fundamental principles present throughout the literature. Primarily, mixed-methods research can answer a question from a number of perspectives. It is less likely that assumptions of the researcher will be impactful in mixed-methods designs. There are six described mixed-methods designs in the literature, Table 5.

Table 5. Mixed-methods Research Designs

Category	Sequential Explanatory Design	Sequential Exploratory Design	Sequential Transformative Design	Concurrent Triangulation Design	Concurrent Nested Design	Concurrent Transformative Design
Collection & analysis of data	Quant phase followed by Qual	Qual phase followed by Quant	Distinct stages informed by study design	Only one data collection phase	Qual and quant data is collected concurrently	Guided by a specific theoretical perspective
Priority given to which data	Quantitative	Qualitative	Whichever serves the theoretical perspective best	Equal priority to Qual and Quant	Specified in the study design	Equal priority to Qual and Quant
Integration of data occurs during this research phase	Interpretive phase	Interpretive phase	Interpretive phase	Interpretive phase	Analysis phase	Analysis phase
Purpose	Qual results used to explain Quant results	Quan data used to explain Qual data	Whichever serves the theoretical perspective best	Focus on similarities and differences	Qual results used to explain Quant results	Whichever best serves the theoretical perspective

The concurrent mixed methods designs are sometimes criticised as it is unclear how the qualitative and quantitative phases inform each other. They can seem to be two separate concurrent studies. To explore nurse understanding of DNACPR (research question 1) and how this impacts care (research question 2), the questionnaire had to be built during the study. This ruled out a concurrent design. The first phase of this research used a qualitative approach to gain a deeper initial understanding of DNACPR which ultimately guided the

questionnaire design and quantitative analysis. Specifically, a sequential mixed methods design was used to allow the findings of phase one (the thematic analysis of NMC hearing transcripts) to be utilised in phase two (the building phase during which the questionnaire, including the vignettes, were developed) and also to build a suitable scheme of analysis for phase three (analysis of the questionnaire responses)".

Qualitative methods are used when the aim is to understand a complex problem rather than to quantify it (Cobb & Forbes 2002). Qualitative data can be gained using a variety of methods which are generally ways of capturing spoken or written word (such as interviews, film and audio recording or direct observation (Polkinghorne 2005)).

The use of interviews was considered but they use open-ended questions, and a topic guide. Due to the sparse data available within the scoping review, it was concluded that a topic guide would not be informed enough by the current evidence. The use of observation was excluded due to the sporadic nature of CPR specifically within a DNACPR context.

The use of qualitative documentary analysis was thought to be appropriate due to the availability of unresearched data. That data being significant in that it provided real-world examples of DNACPR in practice in keeping with the epistemic-contextualist perspective of the researcher, and the evidence gaps identified.

4.2 Summary of Methods

When CPR became widely used in the 1950's and 60's DNACPR was developed to curtail futile CPR. As discussed in Chapter 1 (p. 4) a risk of harm has been identified from both CPR and DNACPR. The evidence gaps identified by the scoping review (Chapter 3, p. 31) indicated there were no studies on real-world DNACPR use in nursing in the UK. While there was some evidence on nurse variables that might impact understanding of DNACPR, these have not been linked with risk of harm. A mixed-methods design was necessary to study available secondary data on real-world DNACPR use, but also establish if any nurse variables might impact risk of harm. A sequential design allowed the reflexive thematic analysis of qualitative data to guide the statistical scheme of analysis of quantitative data. For example the emergence of subthemes within themes could be then reflected in Chi Squares to

determine an effect on risk of harm from a particular understanding of DNACPR. This approach was required to address the evidence gaps and potentially improve practice.

Chapter 5 Methodology

5.1 Study Population

Phase one, the qualitative phase, involved documents which each referred to a regulatory hearing. Phase three the quantitative phase involved a questionnaire completed by nurses caring for older people. The first phase involved selection of documents about a population who had been subject to an NMC hearing. In phase two the questionnaire was piloted with a convenience sample of clinical doctorate students at the University of Stirling. The third phase involved a sample of registered nurses caring for older people.

For phase one the transcripts pertaining to registered nurses who had been the subject of a regulatory hearing which a) related to DNACPR and b) had completed and been transcribed before the data collection date were included.

These hearings happen when a nurse is referred to the NMC. Referrals can be made through several routes, for example an employer or colleague might refer a nurse. A member of the public can also make a complaint to the NMC about a nurse and this would be treated as a referral. All referrals made to the NMC are subjected to an initial screening process. The aim of this process is to determine if there are sufficient grounds that there is a case to answer. If it is determined by the NMC that the nurse has a case to answer, then it is the charges brought in the case that are the subject of a hearing.

After the hearings, transcripts are published in the public interest. The transcripts are made available online. The available transcripts which were previously un-researched provided a rich source of data in text form of up to 10,000 words each. Hearings in which DNACPR was an explicit element in the charges against the nurse were the focus of the reflexive thematic analysis. The transcripts can be readily searched and downloaded, so access was straightforward. Searches for transcripts related to DNACPR were limited to those occurring between 2007 and the date of data retrieval (15th January 2018). The search was repeated in February 2022 and no further transcripts had become available by that time.

The year 2007 was chosen as that was the last major revision of national guidelines on decisions relating to CPR. Any hearings after that date took place when a single UK guidance existed, within which the expectation regarding regulators was set out. The search was conducted on the NMC archive (https://www.nmc.org.uk/concerns-nurses-midwives/hearings/hearings-sanctions/). The search used keywords DNACPR, DNR and CPR and 30 transcripts of regulatory hearings related to DNACPR were found. As this number was manageable none were excluded.

In phase three the population was initially considered to be all registered nurses in the UK. Other groups of nursing staff, students and healthcare assistants were excluded. None of the secondary data used in phase one related to non-registered nursing staff, as the NMC did not regulate these staff groups at the time.

The total number of NMC registrants was over 650,000 at the time of sampling and so this population was too large to effectively sample for a Clinical Doctorate. There was also the consideration that sampling from the register would not have been specific enough given the research questions (*e.g.,* not all registrants practice, not all UK registered nurses are in the UK and so on).

It was necessary to consider how to define a manageable population to enable reliable sampling. Based on the conclusion of the scoping review, the advancing age of the patient was a factor in nurse understanding of DNACPR. Nurses working in the field of older person's care were chosen as a population that could be sampled.

A geographical based population would have had the advantage of including all nurses within a region. The difficulty in working this option through was the lack of any mechanism to identify all the registered nurses in each geography. In any event including paediatric, learning disability nurses *etc*., may have skewed the findings related to the most relevant speciality, the care of older people.

5.2 Access to Nurses & Sampling

Access to nurses via employers was considered but given the complexity an alternative route was found. Speciality-based populations are available via Royal College of Nursing

(RCN) Forums. The RCN is the UK's professional body for nursing and the largest healthcare professional body in Europe. RCN Forums are specialist groups created within the RCN for the purpose of improving practice in specific nursing specialities. The Older People's Forum had 12,500 members at the time of sampling, all of whom nursed older people. This ensured, insofar as possible, that the population was the most relevant available. This also meant that for ethical procedures, only one organisation needed to be engaged with as the gatekeeper to potential participants.

The World Health Organisation Manual for Determining Sample Size in Health Studies was used for the sample size calculation (Lwanga & Lemeshow 1991). For the results to be as representative as possible of the population the calculation used was for a 95% confidence level and a 5% margin of error. The margin of error was important for the statistical analysis. If when asked 50% of respondents replied that DNACPR forms must be signed to be valid we need to have some idea of how this relates to what the total population might reply. In this example because the calculation used a margin of error of 5%, we could infer that between 45% and 55% of the total population would reply in the same way. The confidence level of 95% represents how often the true percentage of the total population lies within the margin of error. To achieve the above a sample of 350 of the 12,500 population was required.

5.3 Qualitative Data Collection

It is useful at this point to state again why the transcripts were researched. Documents as secondary data have been identified as being able to add context about the world in which research participants exist (Bowen 2009). Context has already been identified as an important aspect of the researcher's perspective on knowledge generation. In addition, the scoping review of the literature has identified that contextual evidence, meaning here evidence on real-world CPR decision making by nurses in the UK is a gap in current knowledge. The availability of the transcripts, combined with the gap in the current evidence and the difficulty in generating similar data prospectively support the value offered by using the transcripts to answer this study's research questions.

Before transcripts were collected inclusion criteria were developed. The purpose of inclusion criteria was to enable a decision to be made about which transcripts to include in

the thematic analysis. The criteria needed to be sensitive enough to find all transcripts which should be considered. Through consultation with my supervisory team criteria were agreed to include only transcripts in which DNACPR appeared explicitly transcribed in either the actual charges themselves, or in the description of the incident the hearing was about.

Another consideration for the inclusion criteria was a date range. Transcripts with an incident date prior to 2007 were excluded. This was because the national guidance was last subject to a major revision in 2007 as mentioned earlier. From that time there was national guidance which addressed regulators such as the NMC stating,

> " *The guidance underwent substantial revision in 2007 in order to ensure compliance with the Mental Capacity Act 2005, to respond to feedback on practical aspects of implementing the 2001 guidance and to recognise the increasing importance of multidisciplinary working for example by acknowledging the role of nurses in the CPR decision-making process.*
>
> *These changes reflected emerging developments in healthcare professionals' roles and the way health care is delivered today. As part of the 2007 revision there was extensive consultation with key stakeholders including professional bodies, patient groups, regulators and charities.*" (RCN, BMA &RCUK 2016, p. 2)

Consideration was given to an alternative related to the date of the hearing rather than the date of the incident *i.e.,* that transcripts with a hearing date after 2007 would be included as opposed to an incident date.

The argument for this approach was that the transcripts contained details of the hearings, not the incidents per se. It so followed that if the hearings had taken place after 2007 then the hearing would have had the benefit of being informed by the revised national guidance. The weakness of this option outweighed the strengths given that the incidents (DNACPR in its clinical nursing context) was the subject of the research questions, not the hearings.

To collect the transcripts, it was necessary to download them from the NMC website. The same search terms were used as were used in the literature review (Chapter 3, Table 1, p. 18). The search functionality on the NMC website is based on keywords with no option to be time specific. This search can easily be repeated by any researcher on the NMC website. The keyword searches and numbers of results returned are below in Table 6.

Table 6. NMC Archive Search

Search term	Numbers of Transcripts	Number for Inclusion (i.e., transcripts meeting inclusion criteria)
DNR	31	12
DNACPR	6	3
CPR	143	15
Total	**180**	**30**

As with the literature search it was necessary to include CPR as a search term even though CPR was not the subject of the study. Following discussion with experts in resuscitation, it was determined that while searching for CPR would return higher numbers of less relevant results it was also likely to return some transcripts meeting the inclusion criteria. Screening was performed by reading 180 transcripts online and as a result 150 were excluded. The reasons for exclusion are outlined in Table 7 below.

Table 7. Transcripts Screening

Search term	No. of Transcripts	Excluded	Reason for Exclusion
DNR	31	19	Not in standard transcript format Duplicate transcript DNR reference incidental
DNACPR	6	3	Duplicate transcripts
CPR	143	128	DNACPR reference incidental Duplicate transcripts
Total	**180**	**150**	

Thirty transcripts were determined to meet the inclusion criteria and bookmarked at their online address. The thirty PDF transcripts were downloaded, converted to word documents, and redacted. The redaction removed the personal information pertaining to the individual registrants (registrant name, registrant PIN number, registrant workplace or registrant

country of residence). An Excel log was created and as each new redacted transcript was stored in a secure folder the log was updated to link the stored versions with the originals to provide an audit trail.

5.4 Qualitative Data Analysis

Consideration was given to treating the transcripts as cases and conducting a cross-case analysis. Yin (2009, p. 2) and Stake (2013, p. 3) both described case study research as being useful for the study of a phenomenon in its natural context. Although the transcripts were secondary data, they each were a real-world DNACPR incident (the phenomenon) in nursing (its natural context). There was an inherent weakness in using a case study approach. The credibility in qualitative case study research comes from time spent observing in the field to build cases (Guba 1981). It was therefore decided that the transcripts could not be treated as cases in the sense of case study research.

To ensure that the data analysis fit the study design and research perspective, reflexive thematic analysis was chosen. This method of analysis sits well with epistemic-contextualism from the perspective of knowledge generation. Unlike codebook thematic analysis which creates a framework early in the analytic process, reflexive thematic analysis ensures that codes emerge from recursive engagement with the data. This is less positivist leaning, and truer to an exploratory mixed-methods design. The specific procedure followed was that of Braun & Clarke (2021, p. 35). This procedure included six stages: familiarisation with the data; coding; searching for themes; reviewing themes; defining and naming themes and the production of a report.

5.5 Phase Two -Building the Questionnaire

Phase two of the research included a number of steps. These included prototype development, user acceptability testing and piloting. Because the questionnaire was not built when initial ethical approval for the study was received a second follow up application was required to ethics to have it approved. The final questionnaire can be found at Appendix 5, p. 168.

A prototype was built reflecting the outputs from the thematic analysis. Vignettes have been noted as being a valuable way to study attitudes, perceptions, and beliefs (Hughes & Huby 2002). The relevance and realism of vignettes has been noted as critical to their usefulness (Hughes & Huby 2004). For this reason they were mapped directly form the output of phase one to reflect as accurately as possible real-world DNACPR use. To illustrate this process vignette one is broken down below and each component explained.

A 75-year-old man with terminal cancer is under your care. Reflects the age profile and prognosis in the "patient autonomy and safety" theme.

You were told at handover that he has a valid DNACPR. Reflects the sources and types of information in the "to resuscitate or not" theme.

You have not seen the DNACPR form but the nurse handing over to you confirmed verbally the patient and his family discussed it with her earlier that day. Reflects the "patient rights and wishes" subtheme.

You are called to the bathroom by another patient and the gentleman is unresponsive and in cardiac arrest. Reflects the context in the "patient prognosis" subtheme and "nurse decision making about CPR" subtheme.

Vignettes were written in the manner set out above informed by the thematic analysis and supported by discussion in supervision. When all of the themes and subthemes were represented there were four vignettes in total. The purpose of this section of the questionnaire was to determine if there was variation in professional judgment as suggested in the scoping review. The aim was not to determine if the correct clinical action would be taken. The principles for decisions relating to CPR had been established and so variation in response should in theory have been minimal. In that respect (alignment to UK national guidance) there was in theory a "correct" response for the question asked about each vignette. The four vignettes were presented individually, and the respondents were asked to indicate, from three options, what their highest priority would be in the scenario. A map of the prototype questionnaire to the reflexive thematic analysis is at Table 8.

Table 8. Map of Prototype Questionnaire.

Questionnaire Section	Explores Theme	Explores Subtheme
You and your nursing Career	Expectations of Nurses	Nurse Responsibility for CPR and DNACPR
		Competence of the Nurse in CPR and DNACPR
DNACPR	To resuscitate or not?	Nurse Decision making about CPR and DNACPR
		Futile attempts at CPR
		DNACPR related policy and procedure
	Nurse perceptions of dying well	Verification of death by nurses
	Patient autonomy and safety	Risk of harm posed by the nurse to patients and residents
	Expectations of nurses	Consequences of CPR decisions for nurses
Patient Scenarios	Patient autonomy and safety	Patient and resident prognosis
	Nurse perceptions of dying well	Patient and resident rights and wishes
		Nurse perceptions of dying with dignity

User acceptability testing and piloting involved opening the prototype in Survey Monkey. Survey Monkey was chosen as it was encrypted, secure and GDPR compliant. It was also capable of retaining all the versions of the developing survey.

The prototype was tested by 15 Clinical Doctorate students for convenience. Of these, 14 managed to complete the prototype and useful technical feedback was gathered which resulted in changes (e.g., optimisation for smartphone and simplified navigation). Several typographical errors were corrected as was a "drag and drop" functionality issue.

The questionnaire was optimised for smartphones at this point because none of the 15 testers had decided to complete the questionnaire using their computers – citing the convenience of using their phones instead. The requirement for all questions to be answered was reconsidered. Some questions were amended with "do not know" or similar options. This was in response to tester feedback that the questionnaire was too long. The testers (nurse n=11, AHP n=4) were not necessarily nurses as this test was of the user interface.

A pilot was then opened online for self-completion by a purposive sample of 30 nurses studying or working at the University of Stirling (around 9% of the final sample size needed). In the pilot 83% (n =25) completed the questionnaire. An additional free text question was added to invite the pilot participants to offer feedback. Additional feedback was provided by 12 pilot participants, Table 9.

Table 9. Pilot Questionnaire Feedback

#	Verbatim Free Text Responses on Pilot Questionnaire
1	Very interesting, difficult questions but worthwhile.
2	It's easy, but some need answers and some don't, why?
3	I didn't have any of the qualifications in the qualifications section, but there isn't a way to say that. The questions are easy to answer though and interested to know what is found out.
4	Question 20 is so long it's difficult to remember what you're answering.
5	Easy enough to complete. The layout of question 25 seems a little "fussy". Might be easier to read as two columns?
6	It's difficult to make decisions under pressure, I do however try to balance my decisions with evidence-based practice, compassion and respect.
7	Easy.
8	Easy to complete.
9	Food for thought.
10	Very easy to complete. The scenarios were extremely beneficial in trying to understand how we decide about DNACPR in the clinical setting, true to life as a nurse, very interesting study.
11	Not relevant to my current area of work, but the form was easy to follow and complete.
12	It was confusing that some questions had to have an answer, and some did not.

The questionnaire was amended using the pilot feedback. An explanation as to the need to answer mandatory questions before moving to the next was added. In questions with

multiple options, the list of options was reduced. An example was one of the questions "who can sign a DNACPR form?". The original list of answers included various types of healthcare professionals with six options in all. This was reduced to three options ("a doctor", "a doctor or nurse" and finally "a doctor, nurse or paramedic"). Also, a "don't know" option was added.

5.6 Ethical Approval

A research proposal and the questionnaire were submitted for ethical approval. On consideration of the questionnaire the General University Ethics Panel (GUEP) required further work to address some issues. These ranged from previously unidentified errors to more significant ethical issues. An example of the former was that the date ranges in some questions overlapped. The question "how long have you been a registered nurse for?" had more than one answer option for 5 years *i.e.*, "1 – 5 years" and "5 – 10 years". These errors were corrected.

The Ethics Panel raised an issue with the language in the answer option in the vignette section. An original draft from this section of the questionnaire is below.

You are being asked to answer questions in this section of the questionnaire about patient scenarios, without access to all of the information you may feel you need. This is deliberate as a reflection of decision making in an emergency. Please answer on the basis of your professional judgement with the information provided in each scenario.

1. *A 75-year-old with terminal cancer is under your care. You were told at handover that he has a valid DNACPR. You have not seen the DNACPR but the nurse handing over to you confirmed verbally that the patient and his family have discussed it with her earlier that day. You are called to the bathroom by another patient and the patient is unresponsive and in cardiac arrest. From the options below select one as your highest priority.*

- *Start CPR and call for help*

- *Find the DNACPR form to confirm it is valid*

- *Ensure a dignified death as per the patient's wishes*

The language used in the third answer option was flagged. The panel determined this language to be leading and framed as positive for the patient. Suggestions were made by the panel to change the question and use three answer options based on if the respondent would resuscitate the patient or not.

Their proposal was:

1. *A 75-year-old with terminal cancer is under your care. You were told at handover that he has a valid DNACPR. You have not seen the DNACPR but the nurse handing over to you confirmed verbally that the patient and his family have discussed it with her earlier that day. You are called to the bathroom by another patient and the patient is unresponsive and in cardiac arrest. Would you perform CPR on this patient?*

- *Yes*

- *No*

- *Don't know*

The proposed amendments were discussed at length in supervision and with colleagues. On one hand the concern regards leading language was accepted. On the other hand, the proposed amendment removed DNACPR (the focus of the study) from the answer options.

A new proposal was made to the Ethics Panel for DNACPR to remain within the answer options. The language regards the impact of allowing the patient to die based on either DNACPR or clinical judgement was made neutral. The final version of the answer options are below, followed by the four vignettes.

From the options below select ONE as the highest priority

- *Start CPR and call for help*

- *Find the DNACPR form to confirm it is valid OR have a DNACPR form completed*

- *Provide Palliative Care*

Vignette 1

 A 75-year-old man with terminal cancer is under your care. You were told at handover that he has a valid DNACPR. You have not seen the DNACPR form but the nurse handing over to you confirmed verbally the patient and his family discussed it with her earlier that day. You are called to the bathroom by another patient and the gentleman is unresponsive and in cardiac arrest.

Vignette 2

An 82-year-old lady with end stage dementia and end stage renal failure is under you care. It is reported to you at handover that the patient's doctor and family agreed a DNACPR should be in place. This discussion was recorded in the notes and you are shown the record of the agreement.

The doctor has not completed the DNACPR form, and it is recorded that this will be done the next day. Before the actual form is completed the patient has a cardiac arrest and you are first on the scene.

Vignette 3

You are caring for an 87-year-old lady who has multiple co-morbidities including end stage heart failure and Alzheimer's disease. She has a valid DNACPR form which you have seen and are happy with. She does not have capacity and as a result her son signed the DNACPR form with the doctor. The patient is found unresponsive when you are the only nurse on duty. The patient's daughter is present and asks that you resuscitate her mother.

Vignette 4

You have just started work and are immediately called by a junior colleague to a patient who is unwell. You do not know the patient, but your colleague advises that the 79-year-old was diagnosed with prostate cancer last year and recently stopped therapy for this. The patient notes are at the bedside and indicate the patient also has chronic COPD. There is a completed DNACPR form in the notes which is signed by the patient himself and a doctor but is dated two years earlier. The patient becomes unresponsive and is in cardiac arrest.

The University of Stirling Ethics Decision Tree (UoS 2017) and Policy on the Retention of Research Data were applied to the study at the proposal stage and the appropriate pathway for ethical approval was determined to be the GUEP.

The study did not involve field work or access to patients, service users or their records. While there were human participants there was no invasive intervention. The study did not include the participation of any organisation's employees. No personal identifiers were collected from either of the two study samples.

There were two main ethical considerations at the outset. These were the use of secondary data and the access to and consenting phase three participants. There were also requirements for data protection. The first of these considerations was important to manage as the secondary data contained personal identifiers – name, NMC personal identification number (PIN) and details of the individual's workplace. This information was public but there was no reason why it needed to be collected. It was not required to answer the research questions and so was redacted. This meant the data in its redacted form did not contain sensitive data as defined by the General Data Protection Regulations (GDPR).

The second consideration was related to sampling from the RCN Older People's Nursing Forum. The access was facilitated by the RCN and following discussion with the Ethics Panel some issues were resolved. Firstly, a risk the participants would think the RCN was conducting the study was addressed. A letter was sent to the RCN asking for permission for a cover e-mail and university branding to be used rather than RCN branding and this was accepted.

The Ethics Panel asked if forum members knew when they joined that they might be contacted about research. In a response letter to the Ethics Panel, following two meetings with the RCN, the purpose of the forum was clarified. RCN forums allow members to network and interact in the interests of improving care within a speciality. The Ethics Panel requested confirmation of the author's membership of the forum, given the stated purpose was member-to-member. The requested membership details were supplied.

For security, data were encrypted and stored in password protected folders on a password protected computer. The backup was a university supplied cloud space. Originally the ethics

application proposed the use of Qualtrics as the online questionnaire platform. The Ethics Panel raised concerns about this platform because of the location of its servers. The server locations of other online platforms were determined, and the extent to which the platforms gathered information on respondents.

Survey Monkey had its servers in the Republic of Ireland in full compliance with European Union data protection law. It also had an option to prevent the collection of the IP addresses of the devices people used to complete surveys. The security features included two-step authentication which was the most secure available. For these reasons Survey Monkey was proposed and accepted.

The above issues were resolved during the initial ethics application. Because the questionnaire was built during the study it had to be submitted later. The questionnaire was approved after one round of amendments. The participant information leaflet is at Appendix 6, p. 178, and the ethics application can be found at Appendix 7, p. 180, for reference.

5.7 Quantitative Data Collection & Analysis

A recruitment email was sent by the Royal College of Nursing (RCN) to members of the RCN Older People's Forum (other than those who had opted to be excluded from research related communications). This included participant information, an invitation, and link to the questionnaire. The questionnaire was opened for eight weeks from December 2018 to January 2019. A reminder was sent in the first week of January, excluding those who opted out after the initial invitation.

At the closing date 360 questionnaire responses had been recorded. These were exported to Excel and cleaned. The cleaning process identified eight cases of missing data, empty fields which should have been populated. As it was not possible to make assumptions about these instances the eight responses were discounted. The remaining 352 responses were transposed from text to numerical values and imported to SPSS. The analysis was a scheme of Chi Squares and logistic regressions built based on the phase one findings. This identified which nurse variables and which DNACPR related questions would be crosstabulated. For

example, nurse life support training was crosstabulated with questionnaire responses about futile CPR, because in phase one nurses who withheld CPR spoke about their life support training. The Chi Square results then determined which nurse variables and which questionnaire responses associated with risk of harm were included in the regressions (*i.e.*, Chi Squares of p ≤ 0.05).

5.8 Summary of Methodology

Having determined that a mixed-methods design was required to answer the two research questions, and in turn address the gaps in current evidence, the methodology was finalised. The methodology included the retrieval of NMC hearing transcripts from the NMC website using the same search terms for DNACPR used for the scoping review. The transcripts were subjected to reflexive thematic analysis which was conducted manually. Reflecting the themes and subthemes which emerged a questionnaire was built and self-administered online by members of the RCN Older Person's Forum. The quantitative data was analysed using a scheme of analysis that included Chi Square statistics reflecting the qualitative findings, for example the emergence of themes and subthemes. Finally logistic regressions were conducted using the results of the Chi Squares to take the analysis from a qualitative analysis of nurse understanding of DNACPR through to a determination of the effect on risk of harm.

Chapter 6 Qualitative Findings

This chapter presents the thematic analysis of 30 NMC hearing transcripts referred to earlier in Chapter 5 (5.3, p. 39). The transcripts were subjected to reflexive thematic analysis in six stages as described by Braun and Clarke (2021, p. 35). The findings are presented step-by-step to demonstrate the emergence of the themes from the data. This is described in a linear manner, but the recursive elements are highlighted also. Four inductive themes emerged: "expectations of nurses"; "to resuscitate or not?"; "nurse perception of dying well"; and "patient autonomy and safety".

Reflexive thematic analysis was described by Braun & Clarke (2022, p.35) as "a theoretically flexible interpretative approach to qualitative data analysis that facilitates the identification and analysis of patterns or themes in a given data set". Their six-stage process was used and each of those stages is explained below as described by Byrne (2021).

The first stage is familiarisation and this was described by Byrne as time consuming but necessary to give equal consideration across all of the data – avoiding the temptation to be selective about what to read. The stage therefore involves initial reading, more active reading and note taking of initial casual observations, thoughts and feelings.

The second stage is coding and this involves noting pieces of information that might be relevant to the research questions and developing succinct labels for those pieces of information. In this study codes and coding labels were the same, and this is explained later. The codes are building blocks that later become themes. In this study the endpoint of the coding stage is presented as a mind map.

Stages three and four involve generating initial themes and reviewing them respectively. This moves away from analysing individual pieces of information to an aggregate analysis of meaning and meaningfulness of information across the data set. In this study that meant taking the mind map and moving from that to initial candidate themes by, for example, merging some codes together.

Stage five finalises themes, defining and naming them. This requires a deep analysis of the underlying data supported by extracts. In this study that meant working with the candidate themes and revisiting the codes attributed to then, and the underlying data extracts – resulting in some renaming of themes and the finalisation of subthemes reflecting accurately patterns of meaning across the data. The final stage involves writing a report, which in this case was the writing of this Chapter.

6.1 Familiarisation with the Data

This stage involved the repeated reading of the data. It was necessary to immerse in the data through repeated active reading and note taking. This process included reading the

transcripts four times in different orders and making notes on each transcript during each reading.

Early notes entered in the reflective journal included the broad idea that nurses were trying to do their best for people. At this point during familiarisation the journal also captured my sense of frustration for the nurses that they were subject to negative consequences because of their actions.

Identifying this frustration early enabled me to take a step back and not skew initial code development with what I as a nurse believed about the circumstances described. This step back, and the many steps back-and-forth during the process ensured that from a meta-theoretical perspective there was no drift, positivist or otherwise.

The output from this stage was a set of notes which allowed for a list of ideas about what was in that data to emerge. Illustrative examples of notes on the data from the familiarisation stage are below. (The prefix T# indicated a transcript number);

"The data in these transcripts (T2,T3 &T6) seem to be really about why the nurses didn't do CPR when there wasn't a DNACPR form. But deeper than that also, it's maybe about the different perspectives on that "why I didn't do CPR" that the nurses explained."

"After reading them all again there seems to be something there in the notion of harm in the way it's described by nurses as being prevented by not doing CPR or having a DNACPR. But then at the same time there is an almost directly opposite idea that not resuscitating the patients is what was harmful in the end, because they died. Different takes on what was harmful might be important."

6.2 Coding

The next stage was to generate initial codes from the data. This was done manually using post-it notes and whiteboards, with equal attention to all the data. The aim was to identify features of the data, either semantic or latent, which were meaningful regarding the research questions. Data extracts were identified with a view to what Braun and Clarke (2021, p. 84) described as keeping all relevant ideas in play. This resulted in many data

extracts being identified and coding labels being developed that sought to reflect an analytical angle (semantic or latent) rather than being purely descriptive. Some illustrative examples are provided below.

Table 10 Sample Extracts Coded to Dying Well

T1 She told me to let him die peacefully and not to start CPR. **T10** As an experienced nurse administrating CPR in both incidents, where the chances of success were negligible would have denied both residents the opportunity of dignified death. **T29** During your appeal meeting, some five months after the incident, when asked whether you would carry out CPR if someone collapsed in front of you, you stated that you would carry out CPR if you thought there was a chance of recovery but to do it otherwise could interfere with dignity and respect.	Dying well

Table 11 Sample Extracts Coded to Immediate Decisions Required

T1 No. I did not fail to attempt CPR, I made a clinical professional decision based on my extensive experience not to attempt CPR due to several factors including that the body was cold to the touch and the person had clearly passed. **T5** The panel considered that in the circumstances Mr X needed to make a professional judgment as to whether he should administer CPR in an attempt to revive Resident A who had passed away unexpectedly. **T23** You described that Resident A appeared 'not very alive', he was slumped in his chair, leaning to one side, his mouth open, no respiration and his chest was not going up and down, and he had a blank staring gaze. You stated that when you saw Resident A, in that moment, you froze and did not know what to do.	Immediate decisions required

Table 12 Sample Extracts Coded to the Life Being Lived

T1 Resident A had complex health issues during his stay at the Home, including osteoporosis, chronic obstructive pulmonary disease ('COPD') and co-morbidities. **T5** Mr X was working on a night shift when the condition of a terminally ill resident, Resident A gave him cause for concern. Resident A and his family had requested that in the event of deterioration no attempt to resuscitate him should be made and he should not be sent to hospital. **T10** The earlier fractured right neck femur was as a result of rolling off his bed whilst trying to reach something. He was, therefore, very physically frail. **T28** The allegations arise from the cardiac arrest and subsequent death of Patient A. Patient A had been at the Home for approximately five weeks and suffered from dementia and required physical care as a result of a fractured hip. Latterly she did not like to leave her room, remaining in her bedroom for most of the day and had started on occasion declining to eat food.	The life being lived

Table 13 Sample Extracts Coded to Professional Impact on Nurses

T2 Due to this incident…I sadly have no interest in returning to a nursing career in the future… no longer a registered nurse – check the NMC register. **T4** It noted that she has expressed an intention not to return to the profession for the time being. **T5** Mr X was interviewed in connection with these events by the Home Manager. Following this, Mr X was suspended from the Home. A disciplinary hearing was conducted and Mr X was dismissed. **T7** Following a disciplinary hearing at the Home, Mrs X was dismissed from her employment.	Professional impact on nurses

T28 The panel is of the view that Mr X's behaviour is fundamentally incompatible with continuing to be registered. **T29** The panel has determined that your failure to commence CPR eliminated the chance of survival for Resident A, and therefore that a striking-off order is the only sufficient and proportionate sanction.	

The codes ranged in their analytic depth from semantic to latent. Some of the codes considered the extract in a manner that sought to get behind the surface meaning. Other codes were closer to a "face value" analysis – but were still more than descriptive. When considering the coding labels, I was conscious that they could be influenced by my position in relation to the data and so the notes taken during familiarisation were a useful way to step back in the process and reflect. Reflection was used to consider what a coding label was saying both about the data, but also about the analytical perspective and its coherence with the standpoint of the researcher. That of a nurse, a critical realist and epistemic contextualist. It is important not to confuse critical realism, a central point on the ontological spectrum with the "far left" naïve-realist point on that spectrum.

Some examples of more latent coding are included in Table 12 above such as "the life being lived". These extracts, in relation to DNACPR and the research questions seemed not to be about the surface statement – a description of diagnosis, or medical condition. These extracts were interpreted with the coding label "the life being lived" because they seemed to be important because of the unspoken meaning about quality of life, continuing to live or not, and therefore decisions about CPR.

An example of more semantic coding from Table 13 above was the "professional impact on nurses". While this was still analytical it was more closely related to the surface meaning of the extracts. For example, being the subject of a striking-off order or being suspended from work would have had an obvious professional impact even though it was not explicitly described in those terms.

An additional step taken to increase trustworthiness was for a second person to independently code 10% of the data. It is important to stress here that this was not in a positivist leaning attempt to check if both coders would find the exact same codes emerged, but rather to assist reflection and self-questioning. The resulting discussions at supervision revealed both coders generated similar synonymous codes and themes from the data. This interaction with a second independent coder helped challenge my values and assumptions. A good example of what I mean here is that it helped me identify and bracket my own belief that nurses were "entitled" to make decisions about CPR.

6.3 Searching for Themes

After coding was complete this next stage brought the analysis to a higher level of candidate themes. The process involved looking at each code and interpreting how they might relate to each other, or even overlap or repeat. Mind maps on paper and white boards were used to iteratively move codes into groups, revert to the familiarisation notes and the data - then refine the groups again. The groups of codes became candidates for overarching themes. As an example, Fig 3 below shows a group of codes under the candidate theme called "DNACPR" at that point.
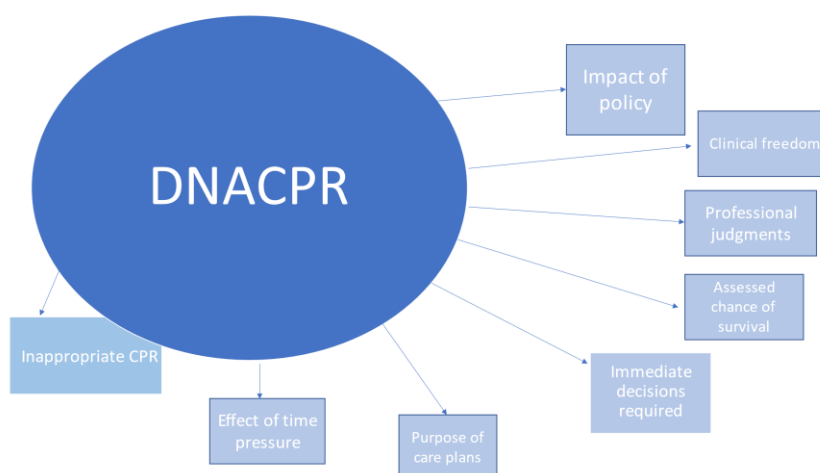

Fig 3 Mind Map Candidate Theme DNACPR

Mind mapping was continued until all the codes were in a group. These groups were then named as four original candidate themes "nurses & nursing"; "DNACPR"; "death & dying" and "patient care". The names of the candidate themes were intended to reflect the relationship between the codes in the group. The completed mind map representing all the data is below, Fig 4.
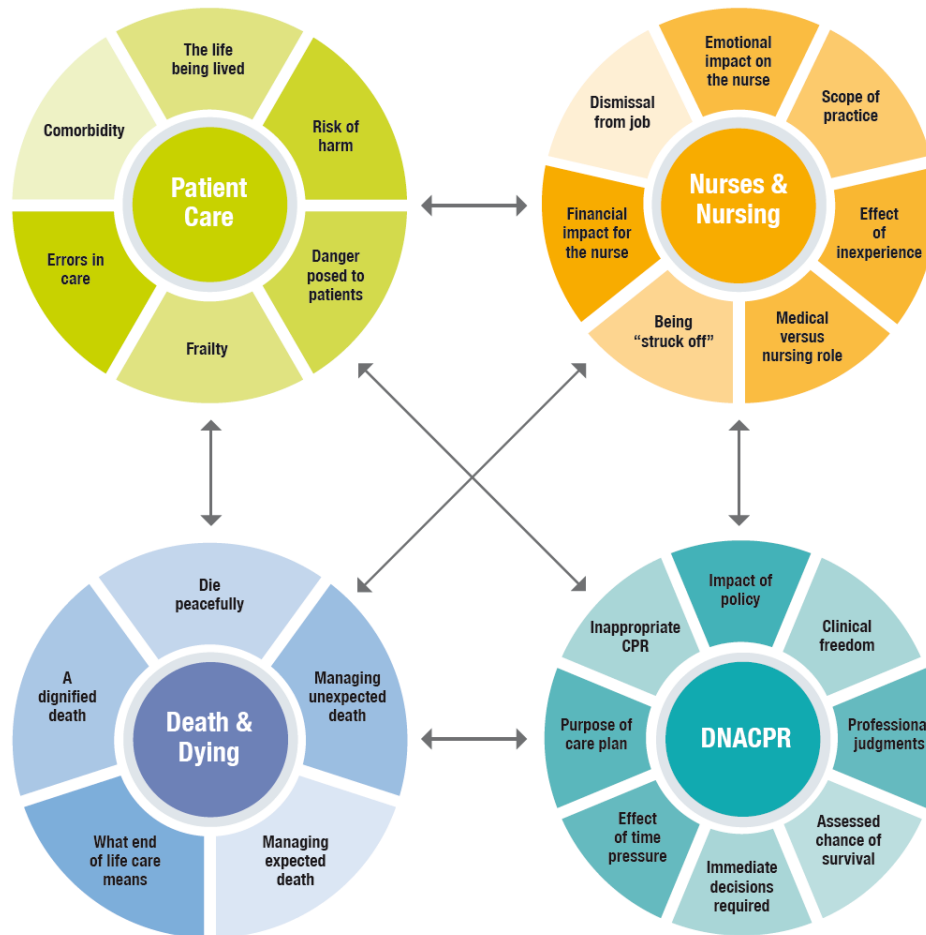

Fig 4. Mind Map of the Qualitative Data

6.4 Reviewing Themes

The next stage was to go back again to the data, through to the coding and sense check the thematic map. There was no attempt to limit the number of codes, or to code a particular extract to only one code. If it was difficult to interpret which one code was a better fit, an extract might have warranted a new code or be coded to more than one place. This meant during the review of themes, and when discussing the thematic map at supervision there were opportunities to refine the themes further.

This process included looking back at the codes, the extracts attributed to them and then reviewing and merging some codes. This was done to enable the next stage - defining, and naming themes. It is acknowledged that at this stage in the analysis "codes" and "coding labels" had met and in effect became one and the same.

Before the next stage was commenced the mind map as the output of coding, was used to name initial themes. The steps listed hereunder explain how the analysis moved from the mind map at Fig 4 above, to the candidate themes at Table 14 (p. 61).

Mind map of nurses & nursing

- o The codes for the emotional and financial impact on the nurse were merged into "personal impact on the nurse" due to similar meanings and repetition.

- o The codes for dismissal from post and sanctions such as being struck off the register were merged into "professional impact on the nurse" because each separately did not have analytical breadth and depth across the data.

- o The codes for medical versus nursing roles and scope of practice were merged to create the candidate subtheme "duty and responsibility" due to their meanings being closely linked.

- o The remaining codes were merged to create a candidate subtheme "the effect of inexperience on ability" due to their similarity, having the same extracts coded to each.

Mind map of "DNACPR"

- o This candidate theme was renamed "resuscitation", because on reflecting on the extracts for the codes, there were many extracts about CPR as well as those about DNACPR specifically.

- o The codes related to clinical freedom, professional judgment and immediate decision making were merged to create the candidate subtheme "decision making" due to the degree of overlap.

- The codes for the assessed chance of survival and inappropriate CPR were merged to create the candidate subtheme "Likelihood of CPR success" as on reflection the meanings were synonymous.

- A candidate subtheme of "records" was added to take account of extracts originally coded to "the purpose of care plans" which on reflection were about nursing records more broadly.
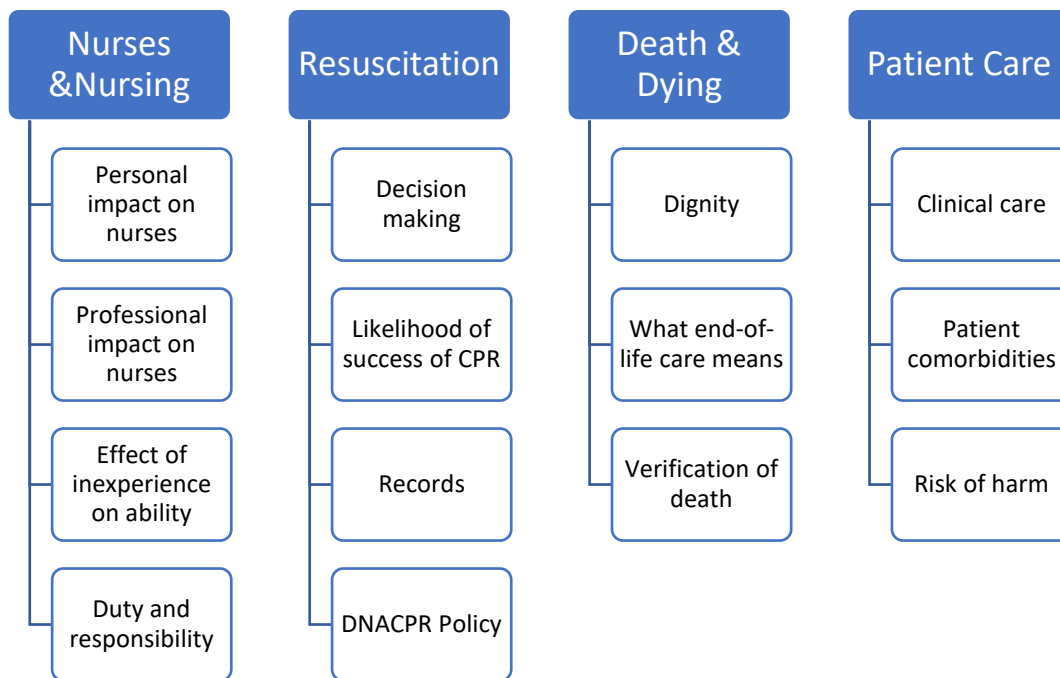
Mind map of "death and dying"

- The codes for dying peacefully and a dignified death were merged to create the candidate sub theme "dignity" as the meanings were synonymous when reconsidered alongside notes from familiarisation and coding.

- The codes for the management of expected versus unexpected death were merged into the candidate subtheme "verification of death" which on revisiting the data is what the extracts were principally about. *i.e.,* the difference in management of expected versus unexpected death being the requirement for verification of death by nurses.

Mind map of "patient care"

- The codes related to errors, danger posed to patients and risk were merged into the candidate subtheme "risk of harm" as there was a high degree of overlap.

- The codes for the life being lived and frailty were merged into the candidate subtheme "clinical care" as the meaning centred on the impact of perceived quality of life and frailty on the care provided.

The findings therefore at the end of stage four of the reflexive thematic analysis where that there were 4 candidate themes and 14 candidate subthemes, see below in Table 14.

Table 14 Draft Thematic Map Candidate Themes and Subthemes

Nurses &Nursing	Resuscitation	Death & Dying	Patient Care
Personal impact on nurses	Decision making	Dignity	Clinical care
Professional impact on nurses	Likelihood of success of CPR	What end-of-life care means	Patient comorbidities
Effect of inexperience on ability	Records	Verification of death	Risk of harm
Duty and responsibility	DNACPR Policy		

6.5 Defining and Naming Themes

Braun and Clarke (2021, p. 112) described this penultimate step as "*identifying the essence of what each theme is about*". Once again, this required a check in with my position in relation to the data and required notes from earlier stages to be close at hand. In addition, the themes were discussed with supervisors and colleagues. It was useful to show the candidate themes and subthemes to non-nurses who told me that some theme names required a pre-existing nursing knowledge to understand.

I attempted to rename the themes to produce a thematic map that was emergent from the data, demonstrated an analytic perspective true to the researcher but was coherent to others. Some considerations on this are set out below by candidate theme, along with the theme definitions. This is followed by the final thematic map (Table 19, p. 66), and after that the last section of this chapter is an interpretation of the final themes.

Candidate Theme - Nurses and Nursing

This candidate theme and its subthemes were considered in relation to the data once again. Reading all the extracts collated under this theme the definition of the theme was written as;

What is expected of a nurse when a patient's heart stops beating, and the result for the nurse when what they and others understand is expected of them regards CPR and DNACPR vary. Those others including their patients, peers, the nursing regulator, and the public.

This definition captured the essence of what the data under this theme was about. The definition prompted a reconsideration of the name of the theme, which now did not seem to capture that essence. The theme was therefore renamed "expectations of nurses". The candidate subthemes were also reviewed and renamed resulting in subthemes which it is hoped are easier to understand, and a truer fit to the data, codes and overarching theme definition. The final map for this theme is below.

Table 15 Expectations of Nurses Definition

Theme	Definition	Subthemes
Expectations of nurses	What is expected of a nurse when a patient's heart stops beating, and the result for the nurse when what they and others understand is expected of them regards CPR and DNACPR vary. Those others including their patients, peers, the nursing regulator, and the public.	Consequences of CPR decisions for nurses
		Nurse responsibility for CPR and DNACPR
		Competence of the nurse in CPR and DNACPR

Candidate Theme - Resuscitation

This candidate theme had already been renamed from "DNACPR" but on further reflection and discussion the theme was renamed again to "to resuscitate or not?". This question was the core around which the data in the theme revolved. The final definition of this theme was;

To resuscitate or not? A decision made by a nurse at a point in time in a set of circumstances viewed retrospectively by themselves and others – underpinned by various perspectives on what CPR and DNACPR are for.

The candidate subthemes were finalised to make them easier to understand and to illustrate more clearly their fit within the theme. The revised and final map for this theme is below.

Table 16 To Resuscitate or Not? Definition

Theme	Definition	Subthemes
To resuscitate or not?	To resuscitate or not? A decision made by a nurse at a point in time in a set of circumstances viewed retrospectively by themselves and others – underpinned by various perspectives on what CPR and DNACPR are for.	Nurse decision making about CPR
		Futile attempts at CPR
		DNACPR related policy and procedure

Candidate Theme - Death and Dying

The candidate theme "death and dying" was renamed "nurse perceptions of dying well" to reflect more accurately what the data were about within this theme. The data were not on reflection about death and dying in any abstract way, but more specifically about how nurse perceptions of dying well impacted DNACPR in the circumstances described. This theme was defined as;

How patients and residents died, and the underlying assumptions of the nurse about how they should have died and how these assumptions may have manifested in actions related to CPR and DNACPR.

As with the other candidate themes the subthemes under "nurse perceptions of dying well" were refined with reference to the definition, reflective journal, and data. The revised and final map for this theme is set out in tabular form below.

Table 17. Nurse Perceptions of Dying Well Definition

Theme	Definition	Subthemes
Nurse perceptions of dying well	How patients and residents died, and the underlying assumptions of the nurse about how they should have died and how these assumptions may have manifested in actions related to CPR and DNACPR.	Nurse perceptions of dying with dignity
		Verification of death by nurses

Candidate Theme – Patient Care

This candidate theme was renamed "patient autonomy and safety" when it was reflected on in the context of the data. These two elements in the data about the care provided by the nurses to the patients and residents formed the essence of what the theme was about – respecting patient's rights and keeping them safe. The theme was defined as;

Nurses applying either CPR or DNACPR because they perceive their decision to be in the interest of patient safety - either decision potentially resulting in a risk of harm to patients. Also, the impact on patient autonomy of the nurse understanding CPR to be either safe or harmful, OR understanding DNACPR to be either safe or harmful.

The final theme and subthemes for "patient autonomy and safety" are below. Changes to the subthemes were made to differentiate what the data meant about the perception of safety versus harm in the separate contexts of prognosis, and patient rights and wishes. The revised and final map for this theme is set out in tabular form below.
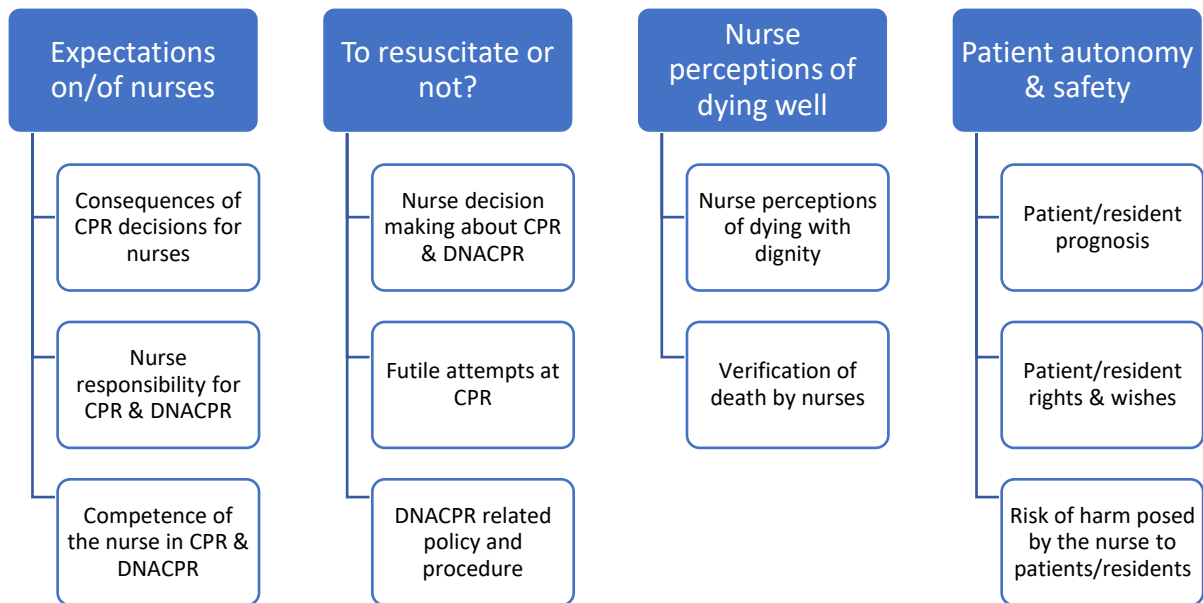
Table 18. Patient Autonomy and Safety Definition

Theme	Definition	Subthemes
Patient autonomy and safety	Nurses applying either CPR or DNACPR because they perceive their decision to be in the interest of patient safety - either decision potentially resulting in a risk of harm to patients. Also, the impact on patient autonomy of the nurse understanding CPR to be either safe or harmful, OR understanding DNACPR to be either safe or harmful.	Patient / resident prognosis
		Patient / resident rights and wishes
		Risk of harm posed by the nurse to patients / residents

6.6 Interpretation of Themes

The summative step in reflexive thematic analysis was to write a report. This chapter so far is part of that report, and the remainder of the chapter will offer the interpretation of the themes that emerged, Table 19.

Table 19. Final Thematic Map.

Expectations on/of nurses	To resuscitate or not?	Nurse perceptions of dying well	Patient autonomy & safety
Consequences of CPR decisions for nurses	Nurse decision making about CPR & DNACPR	Nurse perceptions of dying with dignity	Patient/resident prognosis
Nurse responsibility for CPR & DNACPR	Futile attempts at CPR	Verification of death by nurses	Patient/resident rights & wishes
Competence of the nurse in CPR & DNACPR	DNACPR related policy and procedure		Risk of harm posed by the nurse to patients/residents

6.7 Expectations of Nurses

This theme saw nurses and others describing what they felt was expected of them if a patient or resident had a cardiac arrest. A varied understanding of nursing roles and responsibility often had adverse consequences for the nurse. This included nurses who lost their jobs, decided not to nurse again, or were prevented from practicing again.

Consequences of CPR Decisions for Nurses

The consequences were interpreted in a relatively semantic way. It appeared that for many nurses, while it was not explicitly stated, their decision to do something they felt clinically responsible for resulted in them losing their livelihood. It is proposed that the root cause of this was a fundamentally conflicting set of understandings about their role in decisions about CPR. This was most apparent in the subtheme on responsibility.

Nurse Responsibility for CPR and DNACPR

What nurses themselves believed they were responsible for and what others thought about this was in conflict. The "others" referred to includes nurses who were witnesses and members of the hearing panels. The hearing panels were made up of members of the public and nurses.

Obvious examples of the conflict were views expressed by nurses and others about what was done, and what should have been done in the situations they found themselves in. These points related to nurse responsibility for CPR and DNACPR. Nurses believed that the presence or absence of a DNACPR form in circumstances when they decided not to perform CPR was a moot point, because they were often describing situations when they were the only healthcare professional present. This being understood to mean they had to decide what to do and were entitled, if not even obliged to make such decisions. This was disputed by representatives for the nursing regulator however and nursing responsibility was understood to include a duty to always perform CPR *"T22 you were trying to justify your decision not to carry out CPR and that was not a decision that you, as a nurse, should have been making in any event."* This demonstrated that the understanding of the nurses themselves and those of the regulator were different. This has implications as all the examples above related to circumstances where the nurse was the only healthcare professional present. If the nurse was not supposed to decide about CPR, who would have?

Competence of the Nurse in CPR and DNACPR

If the understanding that nurses must always carry out CPR is correct, then their competence to make decisions not to resuscitate could arguably be a moot point. However, from the reflexive thematic analysis there were findings in this subtheme that show how nurse competence was considered in the context of the situations described. This was variously through lenses of experience or lack therefore, also training and what the nurse was "qualified to do". For example, it was put to a nurse that *"T13 you prevented staff from performing potentially lifesaving interventions to a resident in her care when not qualified to do so"*

This was interpreted as referring to a lack of a qualification to decide and direct that CPR should be withheld. While there is no such qualification available, it may have referred to life support training which was also found to have been linked to nurse competence in other examples. *"T16 the course of action which would be expected of Mr X having received further life support training, was to attempt CPR and especially in Resident B's case as it was an unexpected death and they had no DNAR in place."* There was a conflation here about how being competent to resuscitate might infer you should always resuscitate because you are a nurse. That being opposed to the possibility that life support training could potentially

equip a nurse with the requisite competence to withhold CPR. The type of knowledge the nurse above was referring to could be deployed either in advance by completing a DNACPR form, or in the immediacy of a cardiac arrest.

6.8 To Resuscitate or Not?

This theme was about how and why nurses decided to resuscitate or not, as opposed to what others believed they were allowed to decide. The findings related to the many factors nurses considered as they made their decisions, how they responded to seemingly dead patients and how policy influenced decision making.

Nurse Decision Making about CPR

Nurses described a range of factors that influenced their decisions related to CPR including their peers, their clinical assessments and clinical guidelines. In retrospect the nurses were explaining what types of knowledge they drew on, and why this meant they were confident in their decisions. This is notwithstanding the earlier findings where others stated that nurses should not be deciding about CPR. The confidence some nurses had in their decisions, and their clarity on the knowledge drawn on to make the decisions was perhaps at odds with the seemingly low expectations of what could safely be expected of nurses.

Futile Attempts at CPR

Futility was a repeating issue, expressed as survivability or appropriateness of CPR *e.g. "T27 Two people had clearly agreed that this lady had gone. There was no sensible chance of bringing her back. What do we do call paramedics out to tell us what we already knew?"*

The meaning behind the many explanations from the nurses as to why they did not do CPR was that they believed it would not have been successful. Futility, in the descriptions provided by the nurses of the circumstances, meant they believed that CPR would be disrespectful, harmful, and the wrong thing to do. Contrary to this, the findings indicated

that for the regulator risk was limited to harm caused by not doing CPR, even when futility was accepted.

DNACPR Policy and Procedure

The role that policy played emerged from the data as a subtheme under the theme "to resuscitate or not?" The role of policy in the circumstances described in the data was understood differently by different people. The nurses who were present at the cardiac arrests understood policy to be a tool they could use when appropriate. They did not understand policy to replace their professional judgement. This meant they felt that acting contrary to policy was ok, if that was the right thing to do for the patient or resident for example "*T19 I was aware at the time I was not following the company policy in dealing with the [potential] death of a resident… I did not feel this policy to be appropriate under the circumstances and was more concerned as to what was in the best interest of the residents and their loved ones.*" The nurses understood their clinical freedom to outweigh policy. This was countered by understandings of policy as being directive and to be complied with. This was interpreted as meaning it was unacceptable for nurses to act contrary to policy as in this extract "*T18 The panel, having satisfied itself that you knew or should have known what the policy on resuscitation in the Home was, rejected Mr 's X submissions that you were sympathetically applying end of life care.*"

This differences in understanding about policy between the nurses themselves and others was clear to see. This in turn raises questions about what policy is for in the context of advance or immediate decisions about CPR by nurses. A broad range of policy was found to converge on a decision not to do CPR, including policies on the death of residents, care plans, DNACPR, basic life support and verification of death among others. There was evidence of a difficulty in navigating this density of policy in practice at the time of the cardiac arrests.

Another aspect of policy that emerged as a subtheme was policy related to where and how DNACPR status should be recorded. A wide range of policy perspectives were found related to patient records, care plans, DNACPR forms and handover sheets. There was a confused picture about who was responsible for verifying the accuracy of information recorded in any of these places e.g. "*T9 The panel accepted that there were environmental factors which*

may have contributed to your failings; in particular a lack of proper systems and processes for dealing with situations such as this. These included storing each patient's care plan (with an indication of whether a DNA CPR was in place) away from the patient's room"

The interpretation was that a lack of clarity prevailed about what needed to be done at the bedside to confirm DNACPR status. Between handover sheets, notes, care plans and DNACPR forms there could have been many sources of information to check in situations when an immediate decision was required. The default of administering CPR should generally have been reverted to until information was verified, but that option is not without a risk of harm. It would have been preferable for patients, residents, and nurses to have had a real-time and shared understanding of resident status.

6.9 Nurse Perceptions of Dying Well

The intentions nurses had to ensure that their patients or residents died well emerged from the data. These intentions were expressed through perspectives on dignity in death, allowing the resident to die peacefully out of respect for them.

Nurse Perceptions of Dying with Dignity

The importance of a dignified death was expressed by some nurses as being their most important consideration above policy, care plans, records or DNACPR forms. *"T14 "As an experienced nurse administrating CPR in both incidents, where the chances of success were negligible would have denied both residents the opportunity of dignified death and at best unacceptable probability of brain damage even if successful, something I would find very hard to live with and would not want for my own family…"*

This data was about how the nurses believed they could best discharge their caring responsibility for their patient or resident. While on the surface the perspectives offered seemed to be entirely well intentioned there is no question that the result was to rule out potentially lifesaving CPR. An interpretation that might reasonably be offered is that nurses accepted that allowing patients to die was the right thing to do and resuscitation therefore, the wrong thing to do.

Verification of Death by Nurses

Leading on from the above, in cases when the nurses allowed a patient or resident to die there followed a requirement to verify the death. Verification of death emerged as understood by the nurses as part of their role in the context of end-of-life care. But differing understandings and meanings of verification of death were found. These hinged on the impact of expectedness on nurse verification. "*T11The panel noted that you are not qualified to verify either expected or unexpected deaths. However, after you were instructed by Registrant A to complete the verification of death form, you did so knowing that you were not qualified to do so*"

The above was interpreted as meaning that it is possible for a nurse to be qualified to verify both expected and unexpected deaths. Conflicting observations about the requirements for being qualified to verify death emerged repeatedly for example *"T6 the policy did not state that you need to be specifically trained in order to verify a Resident's death".*

This illustrated a potential for confusion around who can verify death and if there is a need to be specially trained or not. This may have been particularly impactful for the nurses in nursing homes who had decided to let residents die, as they often said that they had been the only healthcare professional present.

In addition to what training might be needed, and whether a nurse can verify death an additional factor was the differences between expected and unexpected deaths."*T30 During the telephone call Registrant B was asked whether the death was expected, and she confirmed that it was expected. Registrant B also asked you whether it was expected, and you confirmed that it was. It is accepted that both you and Registrant B verified the death of Resident A. It is often the case that a death is said to be expected when an end-of-life plan is in force*"

The above is illustrative of the meaning of an end-of-life care plan being among other things that a nurse can verify a resident's death. Distinct from end-of-life care plans, the implication of DNACPR forms on expectedness of death can be seen in the following extract. "*T28 The panel noted the evidence before it in which you state that you were aware that there was no DNACPR in place. The panel therefore considered that you would have been aware that the patient's death was unexpected*"

Regardless of what was understood to constitute an expected or unexcepted death, there was an understanding that the absence of a DNACPR was indicative of unexpected death. Unexpectedness in turn being understood as indicating CPR and hospital transfer.The role of nurses in verifying patient death would need to clearer for them to be assured of the clinical freedom to decide to allow patients to die.

6.10 Patient Autonomy and Safety

An output from the reflexive thematic analysis was a theme related to patient autonomy and safety and within that, subthemes on patient/resident prognosis, patient rights and finally risk of harm.

Patient or Resident Prognosis

There were many examples of semantic descriptions of the condition of the resident but behind these were seeming value judgements on quality of life. Many of these issues were be interpreted as age related. Frailty and some of its features (dementia, osteoporosis, hip fractures *etc)* are more common in the elderly (Lyndon 2015). This may indicate that factors associated with increased age were understood by the nurses as equating to poor quality of life.

Resident/patient quality of life was therefore taken account of in the nurse's decision about CPR. Was the life being lived by the resident one that was worth continuing to live? While the nurses often did not explicitly allude to prognosis there were some circumstances when the prognosis was spoken about."*T4 if the patient is terminally ill and death is inevitable within a short period of time, then that person should be allowed to die naturally*."

Age, condition and prognosis of the patients and residents can be interpreted as having been factored into the nurses understanding of what the right thing to do was. These understandings were not always shared by others though. In the last extract from Transcript 5 above there is evidence that "not being for resuscitation" continues to be conflated with "not being for any treatment" in the event of deterioration. This was described in Chapter 1

as the overinterpretation of DNACPR which was also noted in the scoping review, Kelly *et.*
al. (2021, p. 29) described the effect as "shifts in care".

Patient or Resident Rights and Wishes

In addition to what the nurses thought was the right thing to do, they were found to have
regard for what the patient or resident would have wanted. This was sometimes based on
an interpretation of patient rights in general. In other cases, the nurses seemed to rely on
their personal knowledge of residents to inform an assessment of what was in the person's
best interest for example "*T29 You also stated that you saw the spirit of the patient looking
down on you saying, 'don't you dare'*". There were also instances when it was felt that
patient wishes had not been respected by nurses who gave emergency assistance to
residents who had expressed wishes against being resuscitated.

The latter could be interpreted as meaning that an ambulance cannot be called for someone
who expressed a wish not to be resuscitated. That interpretation may result in a risk of harm
because ambulances could be needed for many types of emergencies that fall short of a
requirement for CPR. On the subtheme of rights and wishes, there were also findings that
can be interpreted as meaning that patient wishes should not unduly impact nursing actions
in cardiac arrest situations as in transcript 21 "T *21 Mr X submitted that the panel may wish
to consider whether your decision not to carry out CPR on the patient was inappropriately
influenced by your beliefs about the patient's wishes*" It is clear that there was regard here
to patient wishes, including the right to die. But what it also demonstrated are variations on
what patient wishes mean to nurses and others, and the influence they have on decisions
related to CPR.

Risk of Harm posed by the Nurse to Patients or Residents

The final subtheme to offer an interpretation of is the risk of harm posed by the nurse to
patients or residents. The researcher's position in relation to the research, that of a nurse is
noted again. The ethical theories underpinning nursing practice are translated into practice
for nurses through the NMC Code (Horsburgh 2007, p. 168). The NMC Code requires nurses
to priorities people, making the care and safety of people our first concern (NMC 2020b, p.
6). Through this analytical lens one common latent meaning behind almost all the extracts
across all themes can arguably be interpreted as attempts to avoid harm. More semantically

though, this common attempt to avoid harm can be divisive. What constitutes a risk of harm was grappled with by the nurses and others.

"T25 The panel was of the view that this demonstrated that you have very limited insight into your misconduct in that you have failed to understand your obligation to perform CPR in accordance with policy, whether or not you consider that there is a chance of the patient recovering. The panel cannot therefore be satisfied that you do not currently pose a risk of harm to patients."

The above illustrated that the risk of harm was meant as arising specifically from the potential the nurse would repeat their decision not to resuscitate in future. This was even in the context of situations when the nurse does not believe there is a chance the patient will survive. The fact that a risk of harm was understood to be linked to any decision not to resuscitate may preclude such decisions being made – even if the circumstances are different each time. The example below illustrated how this might act as a deterrent from deciding not to resuscitate. Wholesale discouragement of decisions not to resuscitate potentially increases the risk of harm by preventing a case-by-case assessment.

6.11 Summary of Qualitative Findings

A reflexive thematic analysis of the 30 transcripts was completed using the six-stage procedure described by Braun & Clarke (2021, p. 35). The findings were that four overarching themes emerged: "expectations of nurses", "to resuscitate or not?", "nurse perceptions of dying well" and "the risk of harm posed by the nurse to patients or residents".

The essence these themes had in common was a question about whether the right thing was done for patients and residents. As a nurse, this assessment of right versus wrong and the meaning of the data were analysed from my perspective as a peer of the nurses involved. All nurses having the same obligations set out in the NMC Code which translates bioethical principles into practice requirements.

The understanding of DNACPR and decisions related to CPR across all themes and subthemes were found to be varied. The understanding of the nurses and others were often

juxtaposed. Nurses were found to have understood their decisions not to resuscitate as being right on the basis that CPR would have been either futile, inappropriate, or undignified. Others, including witnesses and the hearing panel were found to have believed the nurses did wrong based on an understanding that decisions about CPR were not ones that nurses should have made.

Nurses were found to have reflected on their decisions about CPR as having been based on a range of information. Peers, previous experience, training, guidelines, and policies were found to have influenced decision making. The purpose of end-of-life care and DNACPR was found to be expressed in a variety of ways, with many conflicting beliefs. This was interpreted as meaning there was no shared understanding of the concepts and therefore nurses relied on their own professional judgement. This was not accepted as being a nurse's role, the nurse being expected to follow policy and written directions. It was unclear how this could have been possible in the examples when written directions were not present or were inaccurate.

Nurses appeared to place significant importance on dignity, and to understand this as meaning patients should be allowed to die if CPR would be futile. Nurse assessment of their patients and residents made them willing to override policy related to DNACPR in some examples if they judged that to be in the individual's best interests. That in turn was linked to the idea that these nurses might pose a risk of harm. Harm was found to mean different things, including death due to a failure to do CPR and the denial of a dignified death due to futile CPR. Risk of harm was interpreted to mean a static set of risks including the two just mentioned, rather than the result of an actual risk assessment for individual residents.

Chapter 7 Quantitative Results

The quantitative results are based on an SPSS supported analysis of 352 questionnaire responses. The results are reported below including demographics, training and education (7.1), experience and responsibility (7.2), purpose of DNACPR forms (7.3), decisions related to CPR (7.4) and patient care (7.5). Relationships between nurse variables and responses are then described using the Chi Square statistic (7.7 to 7.10) and logistic regressions (7.11). For completeness the statistics for sections 7.7 to 7.10 are included below, but for ease all these results are then presented in one table (Table 49, p. 119).

Approximately two thirds of nurses who responded to the questionnaire were experienced nurses with 94.9% (n = 334) having more than a decade of nursing experience. This fit with the national picture as 60% of the UK's 698,237 nurse registrants were over the age of 41, and 66% of new registrants in 2019 were under 30 years of age (NMC 2020c). Over one fifth (22.4 %, n = 79) were male, higher than the 12% of the total UK nursing workforce who were recorded as being male (NMC 2020c).

The nursing home sector was highly (and disproportionately) represented in the sample. Of the 352 respondents, 210 (59.6%) worked in nursing homes. This population was deliberately targeted however. As a result, most of the questionnaire respondents worked with older people – albeit in a range of settings including nursing homes, the community and palliative care (Table 20).

Table 20. Care Setting of Questionnaire Respondents

Setting	Frequency	Percent
Nursing Home	210	59.6%
Hospital	65	18.5%
Community	33	9.3%
Hospice	15	4.3%
Patient / Client's Home	9	2.5%
Prison	8	2.3%
Other	12	3.5%
Total	**352**	**100%**

7.1 Training and Education

The population sampled was reflected in the specialist post graduate qualifications respondents had (Table 21). While just under half had no specialist qualification, over a third (33.8 %, n = 119) had either a specialist qualification in the care of older people or palliative care. Within the sample 68.2% (n = 240) were educated at BSc level, 19.3% (n = 68) at MSc level and the remainder at or below Diploma level.

Table 21. Specialist Post Graduate Qualifications of Questionnaire Respondents

Specialist Qualifications	Frequency	Percent
None	165	46.8%
Older Person's	69	19.6%
Palliative Care	50	14.2%
Other Medical Speciality	22	6.3%
Intensive / Critical Care	20	5.7%
Advanced Nurse Practitioner	12	3.4%
Emergency Care	8	2.3%
Other	6	1.7%
Total	**352**	**100%**

The evolution and purpose of life support training was described in Chapter 2, p. 9. To recap in brief, the lowest level is basic life support (BLS), followed by intermediate life support (ILS) and the highest level is advanced life support (ALS). The most common level of life support training was BLS at 59% (n= 208). The next most common was ILS at 22.7% (n=80), then ALS at 15.6% (n=55), 2.6% (n=9) of respondents had no life support training.

7.2 Experience and Responsibility

Management responsibility was common among the respondents, with lone working being widespread. 44.6% (n = 157) of respondents had both clinical and non-clinical management responsibility while a further 33.8% (n = 119) had clinical management responsibility. Almost three quarters of respondents worked alone, (73%, n = 257) but this was much more common among those working in nursing homes (81%, n = 170) versus hospitals (4.6%, n = 3).

7.3 DNACPR forms – Legal Standing & Intended Purpose

The DNACPR section of the questionnaire was the longest given the research questions. The reason the study was carried out was because of documented harm following the misuse of DNACPR, its over or under-interpretation. Questions were asked about who could sign a DNACPR form, what the forms were for, and if they were legally binding. The majority 63.9% (n = 225) responded that DNACPR forms are legally binding, which they are not in any UK country. Over half (55.4%, n = 195) believed that only a medical doctor can sign a DNACPR form despite the forms being amended for nurse signatures in 2007. Of the 352 respondents 85% (n=300) agreed that DNACPR forms provide for dignity in death, supporting the findings of the thematic analysis. In contrast to this though 37.5 % (n = 132) said they would perform CPR even if a valid DNACPR was in place.

There was less consistency about other issues related to the purpose of DNACPR. Of the 352 respondents 165 (46.9%) responded it was true that DNACPR forms prevent A&E or ICU admission, while 169 (48%) responded this was false. Questions were asked about the appropriateness of a range of treatments, including CPR, for patients with valid DNACPR forms.

The respondents were asked to rate each treatment as either always, possibly or never appropriate. A range of treatments and interventions were believed to never be appropriate for patients with DNACPR forms, while 38.6 % (n = 136) responded CPR itself might be appropriate. Most commonly respondents indicated ICU admission would never be appropriate (39.2%, n = 138), followed by chemotherapy (27.3%, n = 96). While at the same time a large number (64.5%, n = 227) responded that they would be willing to perform 'futile' CPR.

7.4 Decisions related to DNACPR

Questions were asked about what nurses depended on day-to-day to inform decision making. For each option they were asked if they depended on it to guide their day-to-day practice 'not at all', 'a little', 'a lot' or 'totally'. The range of potential influencers and the degree to which the respondents indicated they depended on them are below in Table 22.

Table 22. Day-to-Day Practice Decision Making Influencers

Information source / influencer	% Replying they depend on this a lot	% Replying they totally depend on this	Total
Own clinical judgement	58.2% (n = 205)	36.6% (n =129)	94.8% (n = 334)
Own prior experience	60.2% (n = 212)	31.5% (n = 111)	91.7% (n = 323)
Patient preference	52.3% (n = 184)	28.7% (n = 101)	81% (n =285)
Policy	48.6 % (n = 171)	31.8% (n = 112)	80.4% (n = 283)
Nursing handover	55.1% (n = 194)	23% (n = 81)	78.1 (n = 275)
Patients family's preferences	32.1% (n = 113)	15.6% (n = 55)	47.7% (n = 168)
The law of the country you work in	13.1% (n = 46)	26.4% (n = 93)	39.5 (n =139)
National guidelines e.g., Royal Colleges	30.1% (n = 106)	3.1% (n = 11)	33.2 (n =117)
Doctors instructions	28.4% (n = 100)	4.3£ (n = 15)	32.7% (n = 115)
SIGN / NICE clinical guidance	24.7% (n = 87)	4.8% (n = 17)	29.5% (n = 104)

Respondents appeared much more likely to depend 'a lot' or "totally" on their own judgment (94.8%, n=334) and their own experience (91.7%, n=323) than other ways of deciding.

Questions were asked about the success of CPR generally, and nurse ability to assess the likelihood of successfully resuscitating their own patients. Out of the 352 respondents 61.6% (n =217) responded that they could effectively assess the likelihood of successfully resuscitating their patients in the event of a cardiac arrest.

Regards their duty as nurses, respondents were asked to choose from a list, which one option best described their duty to a patient in cardiac arrest. The list contained some of the same items respondents had previously been asked to reflect on and indicate to what extent they depended on them in day-to-day practice, for example policy and patient preference. The responses are summarised below in Table 23.

Table 23. Duty of Respondents to Patients in Cardiac Arrest

Response	Frequency	Percent
Follow the NMC Code	94	26.7%
Follow policy	58	16.5%
Make clinical judgement	58	16.5%
Follow the care plan	46	13.1%
Obey the law	46	13.1%
Follow patient wishes	21	6.0%
Get help	19	5.4%
Did not answer	10	2.8 %
Total	**352**	**100%**

When framed in this way, the question being asked as regards the nurse's duty in a cardiac arrest situation specifically, patient wishes were found to feature much less prominently than in the general day-to-day practice responses. When asked about what informs their general day-to-day practice earlier, 81% (n = 285) responded that they depended "totally" or "a lot" on patient preference. As opposed to in response to this question, related specifically to a cardiac arrest when only 6% (n = 21) identified that following patient wishes was their primary duty.

7.5 Patient Care

For each of the four vignettes respondents were asked the same question, to select from a list of three options what their highest priority would be (Appendix 5, questionnaire Section 3, p. 182). The three options in all cases were either 1) to commence CPR and call for help 2) to find, verify or complete a DNACPR form or 3) to provide palliative care. Table 24 below gives the percentages of respondents indicating if CPR, the DNACPR form or palliative care would have been their highest priority for each scenario.

Table 24. Responses to Vignettes

	Priority is CPR	Priority is the DNACPR Form	Priority is Palliative Care	Did not know
Scenario 1	42%	25.6%	25%	7.4%
Scenario 2	44.9%	17.6%	30.1%	7.4%
Scenario 3	42%	32.7%	17.9%	7.4%
Scenario 4	54.8%	19%	18.8%	7.4%

What was immediately apparent was the finding that commencing CPR was most frequently thought to be the highest priority regardless of prognosis or the presence or absence of a DNACPR form. This supported the earlier findings in Section 7.3, p. 82 that a majority would be willing to perform futile CPR and that 38.6% felt CPR might be appropriate even for a patient with a valid DNACPR form. While not the highest priority overall, it was also found that the form itself in some instances, was considered the highest priority.

In the final question respondents were asked to reflect on how they had just answered the patient scenario section. From a list they were asked to indicate what was most important to them as they were considering the vignettes. The answer options again included policy, patient preferences *etc*. The responses are summarised below in Table 25.

Table 25. Respondents Most Important Considerations about Vignettes

	Number replying this was their most important consideration when answering the patient scenario section of the questionnaire	% replying this was their most important consideration when answering the patient scenario section of the questionnaire
Policy	111	31.5%
Patient preference	62	17.4%
Compassion	46	13.1%
Patient dignity	33	10.4%
CPR effectiveness	31	8.7%
Not to be disciplined	20	5.5%
The NMC Code	20	5.5%
The law	19	5.2%
Scope of practice	10	2.7%
TOTAL	**352**	**100%**

Again, as in the response to the question about a nurse's duty to a patient in cardiac arrest, policy was found to feature prominently. It was also found to have emerged as a subtheme and related to decision making (see Section 6.8 on the theme "to resuscitate or not?, p. 69).

Policy was the most prominent driver related to DNACPR but was much less prominent for day-to-day practice where professional judgement and patient preference was reported to have been depended on more (Table 22 earlier, p. 83).

7.6 Relationships between Nurse Related Variables & Question Responses

Demographic and work-related data were gathered about the participants including gender, care setting, experience, qualifications, education, and life support training. Other questions were designed to identify a risk of harm using the conclusions of the scoping review and findings from the thematic analysis. These included for example responses that DNACPR prevents other treatments, or that DNACPR is legally binding. Further analysis was conducted to identify any relationships between the variables. The null hypothesis was that there was no association between the nurse related variables and the responses.

The primary tests used, given the categorical nature of the variables, were crosstabs and the Chi Square or Fisher's Exact tests. A logistic regression was run (binary logistic regression using SPSS) following these non-parametric tests to examine the role of variables as predictors of risk of harm. While all the variables were categorical, so finding a cause-and-effect relationship was not possible, confirming relationships between variables was. To manage the volume of analysis a scheme was developed guided by the scoping review and phase one findings, summarised at the end of Chapter 6, p. 78.

The analysis focused on the legal standing of the DNACPR forms, futility of CPR, impact of DNACPR on treatments other than CPR and the patient vignettes. Each of these were analysed to determine if there was a statistically significant relationship with nurse gender, care setting, experience, specialist qualifications, highest educational attainment, or level of life support training.

7.7 Are DNACPR Forms Legally Binding?

DNACPR forms are not legally binding in any UK country (RCN, BMA & RCUK 2016, p. 5). Tests for any association between this response and some of the nurse related variables were conducted – the gender, care setting, experience, specialist qualifications, highest educational attainment, or level of life support training of the respondents.

7.7.1 Are DNACPR Forms Legally Binding – Gender

The association between response to the question on the legal standing of DNACPR and the gender of nurse respondents was measured (Table 26).

Table 26. Crosstabulation: Gender / Is DNACPR Legally Binding?				
		Is DNACPR legally binding?		
		% Yes	% No	% Don't Know	Total %
Gender	Female	64.3%	27.9%	7.8%	100%
	Male	62.5%	32.5%	5%	100%
Total n		225	102	25	352

It was found that out of 272 female nurses, 175 answered "yes" believing the forms were legally binding, and 76 answered no. Out of the 80 male nurses, 50 answered "yes" and 26 answered "no". 4 male and 21 female nurses answered, "don't know". For both males and females, the data followed a similar pattern.

The Chi Square test found no association between gender and how respondents answered for DNACPR being legally binding or not ($\chi2=1.12$, $p=0.57$). The P Value for the test was 0.571 (not less than 0.05). At 5% significance level there was no significant relationship between gender and 'Are DNACPR forms legally binding?'. The null hypothesis, that the variables are not related, cannot be rejected.

7.7.2 Are DNACPR Forms Legally Binding – Care Setting

A similar analysis examined the relationship between the care setting the nurses worked in and their response to the question. To conduct this test the care settings other than "nursing home" were combined to make the variable binary – and so "nursing home" and "other setting" were used for the analysis (Fig 5, Table 27).
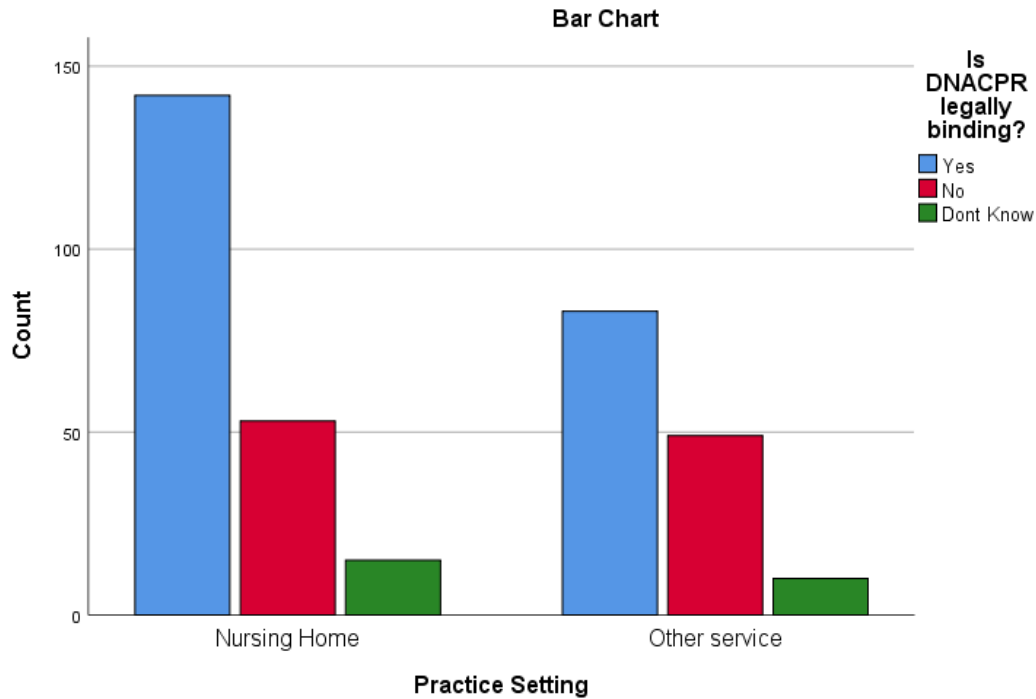
Fig 5. Bar Chart: Care Setting / Is DNACPR Legally Binding?

Table 27. Crosstabulation Care Setting / Is DNACPR Legally Binding?					
		Is DNACPR legally binding?			
		% Yes	% No	% Don't Know	Total (%)
Care Setting	Nursing Home	67.9%	25.2%	6.9%	100%
	Other settings	58.4%	34.5%	7.1%	100%
Total % = all settings		63.9%	28.9%	7.2%	100%
Totals (n)		225	102	25	352

In response to the question "Are DNACPR forms legally binding?" it was found that out of 210 nurses who worked in nursing homes, 142 answered "yes" and 53 answered "no". Out of the 142 nurses who worked in other settings, 83 answered "yes" and 49 answered "no". It was observed that regards the care settings the nurses worked in the proportion of "yes", "no" and "don't know" followed a similar pattern. There was no significant relationship between care setting and response ($\chi2=3.08$, $p=0.07$) – with the frequency of responses being close to the expected distribution for each care setting.

7.7.3 Are DNACPR Forms Legally Binding – Experience

A test was conducted to determine if there was a relationship between how experienced the nurses were, in years qualified, and their response to the same question. This test was conducted twice – firstly with all the possible responses for "years qualified" and secondly with respondents grouped into two groups of 1 to 10 years qualified, and 11 or more years qualified (Fig 6, Table 28).
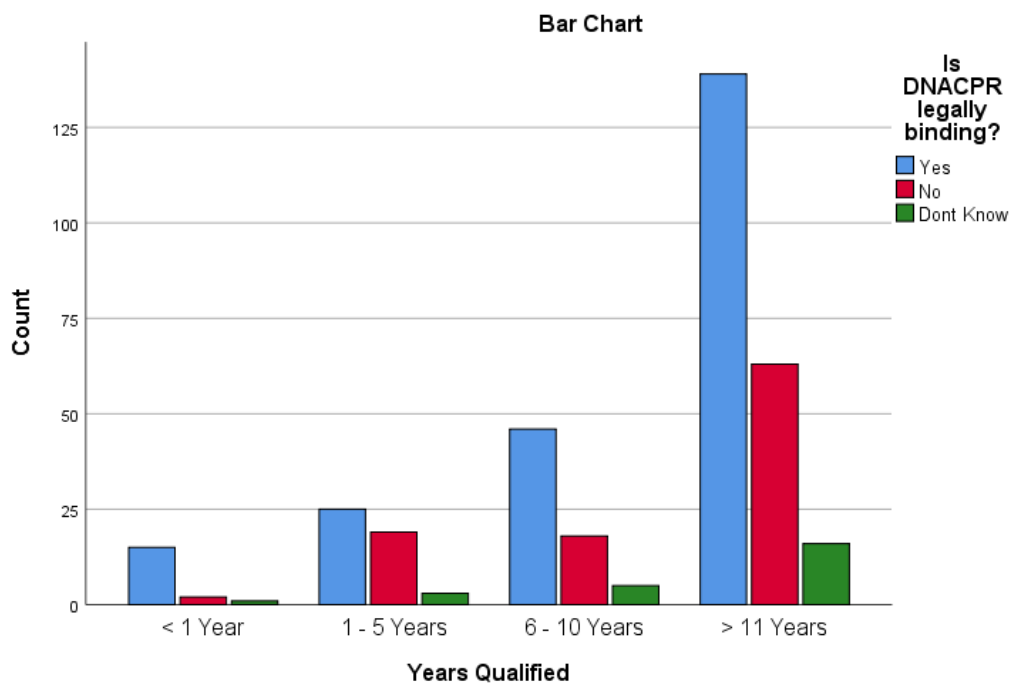
Fig. 6. Bar Chart: Years Qualified / Is DNACPR Legally Binding?

The responses followed a broadly similar pattern across the different ranges of experience, and there was no significant relationship. However, the association was found to be stronger when the years of experience were grouped into two groups – each with more or less than a decade of years qualified.

Table 28. Crosstabulation: Years Qualified / is DNACPR Legally Binding?			Years Qualified		
			1 to 10 years	11 or more years	Total %
Is DNACPR legally binding?	Yes	%	83.3%	62.8%	100%
	No / Don't Know	%	16.7%	37.2%	100%
		n	18	334	352

When analysed in this way there was a stronger association between years of experience (more or less than a decade) and nurse response to the question "are DNACPR forms legally binding?" but that association while stronger (χ2 =3.10, p =0.078 versus 0.379) was not a significant relationship.

7.7.4 Are DNACPR Forms Legally Binding – Specialist Qualifications

Nurse specialist qualifications were most frequently in older person's nursing (formerly geriatric nursing) and Intensive Care Nursing. There were a range of "other specialties" also, which were combined due to the low individual counts, and referred to hereafter as "other specialist qualifications" within the text.

It was found that nurses with no specialist qualifications, and nurses with a qualification in the care of older people were more likely to think DNACPR forms were legally binding than nurses with ICU qualifications and other specialist qualifications. The relationship between these variables was found using the Chi Square Test to be significant (χ2= 26.15, p = <0.001) (Fig 7).
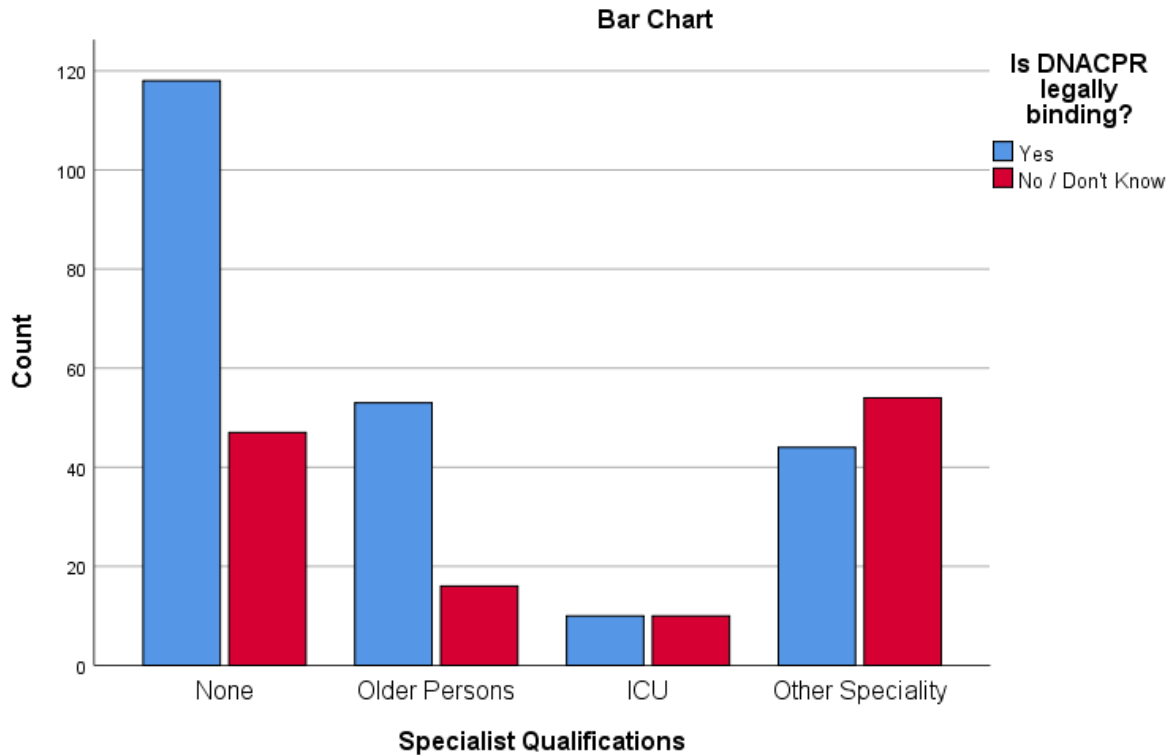
Fig 7. Bar Chart: Specialist Qualifications / Is DNACPR Legally Binding?

7.7.5 Are DNACPR Forms Legally Binding – Highest Education Level

In addition to the type of education the nurses had, their highest level of educational attainment was also a nurse related variable captured. A Chi Square Test was conducted to determine if there was an association between the nurse's highest level of education and their answer to this question (Fig 8, Table 29).

Fig 8. Bar Chart: Highest Education / Is DNACPR Legally Binding?

Table 29. Crosstabulation: Highest Education / Is DNACPR Legally Binding?					
		Is DNACPR legally binding?			
		Yes	No	Don't Know	**Total %**
Highest Education	**Certificate**	80%	10%	10%	100%
	Diploma	78.7%	18.1%	3.2%	100%
	Degree	65.8%	26.2%	8%	100%
	Masters	48.5%	45.5%	6%	100%
	Doctorate	0%	100%	0%	100%
Total % All Levels of Education		63.9%	28.9%	7.2%	100%
Total n		225	102	25	352

There were five education levels considered in the analysis. It was found using the Chi Square Test that as the education level of the nurses increased, the percentage of nurses answering that DNACPR is legally binding decreased – the association being significant ($\chi 2$= 13.42, p= 0.009).

7.7.6 Are DNACPR Forms Legally Binding - Life Support Training

The next Chi Square test conducted was to determine if there was a relationship between the level of life support training the nurses had and their response to this question. As with specialist qualification there was a significant relationship ($\chi2= 50.10$, p = <0.001) between the level of life support training and whether nurses responded that DNACPR forms were legally binding or not (Fig 9, Table 30).
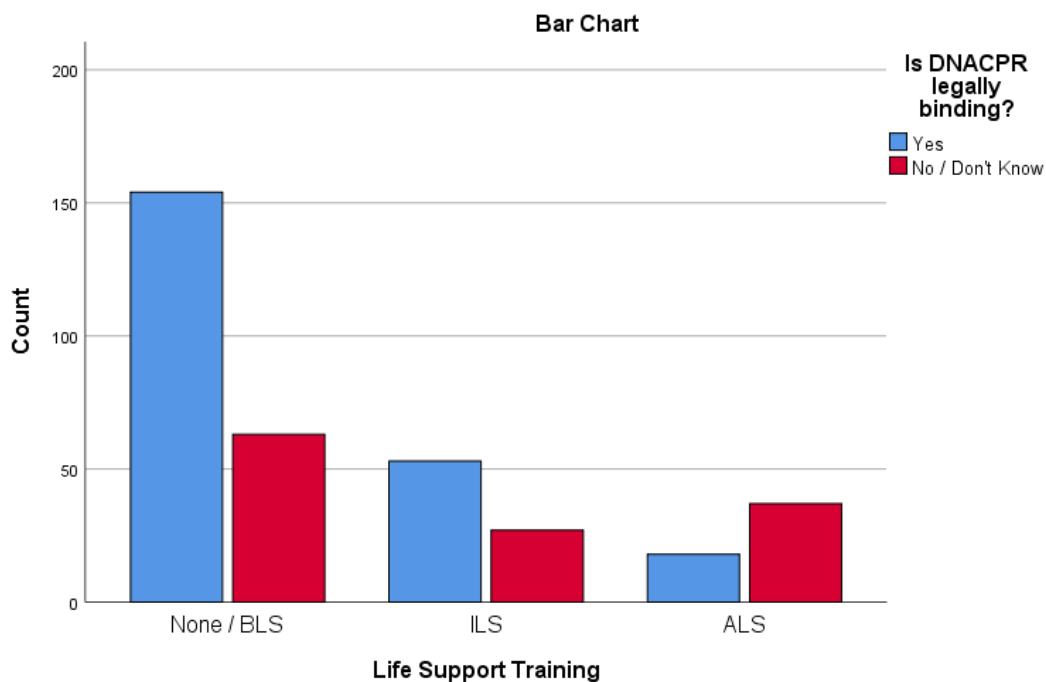
Fig 9. Bar Chart: Life Support Training / Are DNACPR Forms Legally Binding?

Table 30. Crosstabulation: Life Support Training / Are DNACPR Forms Legally Binding?					
		Is DNACPR legally binding?			Total %
		% Yes	% No	% Don't Know	
Life Support Training	No training	88.8%	0%	11.2%	100%
	BLS	70.1%	21.6%	8.3%	100%
	ILS	66.2%	25%	8.8%	100%
	ALS	34.5%	65.5%	0%	100%
Total % All Life Support Levels		63.9%	28.9%	7.2%	100%
Total		225	102	25	352

Nurses with ILS were approximately 5.5 times more likely to answer "yes" than those with ALS. And those with BLS or no training were 7 times more likely to answer "yes" *i.e.,* that DNACPR was legally binding.

7.8 Futile CPR

Another question which was sensitive to risk of harm was whether the respondent would carry out CPR even if they thought it was futile. This was subject to analysis because futility was found to emerge as a subtheme in the theme "to resuscitate or not?" (Chapter 5, 5.8).

7.8.1 Futile CPR - Gender

A Chi Square test was conducted to see if the gender of the nurse had any association with their response to this question. The responses "yes", "no" and "don't know" followed equal distribution patterns for male and female nurses and there was no relationship between the variables ($\chi2$=<0.001, p = 0.99) (Fig 10).
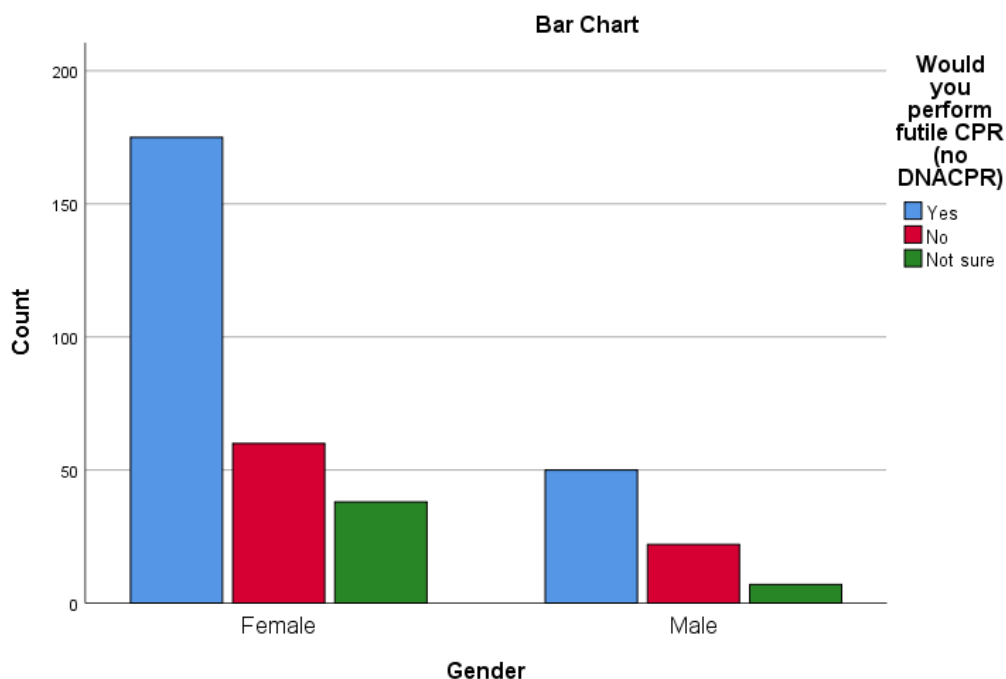
Fig. 10. Bar Chart: Gender / Would you Perform Futile CPR?

7.8.2 Futile CPR - Care Setting

The care setting in which nurses worked and whether they would knowingly perform futile CPR was analysed. No significant relationship between these variables was found (Table 31).

Table 31. Crosstabulation: Care Setting / Would you Perform Futile CPR?		Would you perform futile CPR?			
		% Yes	% No	% Not sure	Total %
Care Setting	Nursing Home	68.5%	20.4%	11.1%	100%
	Other Setting	57%	27.4%	15.6%	100%
Total % All Settings		63.9%	23.2%	12.9%	100%
Total n		225	82	45	352.0

The nurse's years of experience, in years qualified, grouped into "up to 10" and "more than 11" years was crosstabulated next for the same question. No relationship was found using a Chi Square Test ($\chi2=3.10 p=0.07$).

7.8.3 Futile CPR - Specialist Qualifications

A significant relationship was found between these variables ($\chi2= 27.28$, p = <0.001) and the relationship follows the pattern of the relationship between specialist qualifications and the nurse responses to the previous question on the legal standing of DNACPR forms, *i.e.* nurses with ICU and other qualifications were less likely to respond they would be willing to perform futile CPR than older person's nurses and nurses with no specialist qualifications (Table 32, Fig 11).

Table 32. Crosstabulation: Specialist Qualifications / Would you Perform Futile CPR?					
		Would you perform futile CPR?			
		% Yes	% No	% Not sure	Total l%
Specialist Qualifications	None	68.4%	20.6%	11%	100%
	Older Person's	79.7%	11.5%	8.8%	100%
	ICU	70%	15%	15%	100%
	Other Speciality	43.8%	37.7%	18.5%	100%
Total % All Specialities		63.9%	23.2%	12.9%	100%
Total n		225	82	45	352
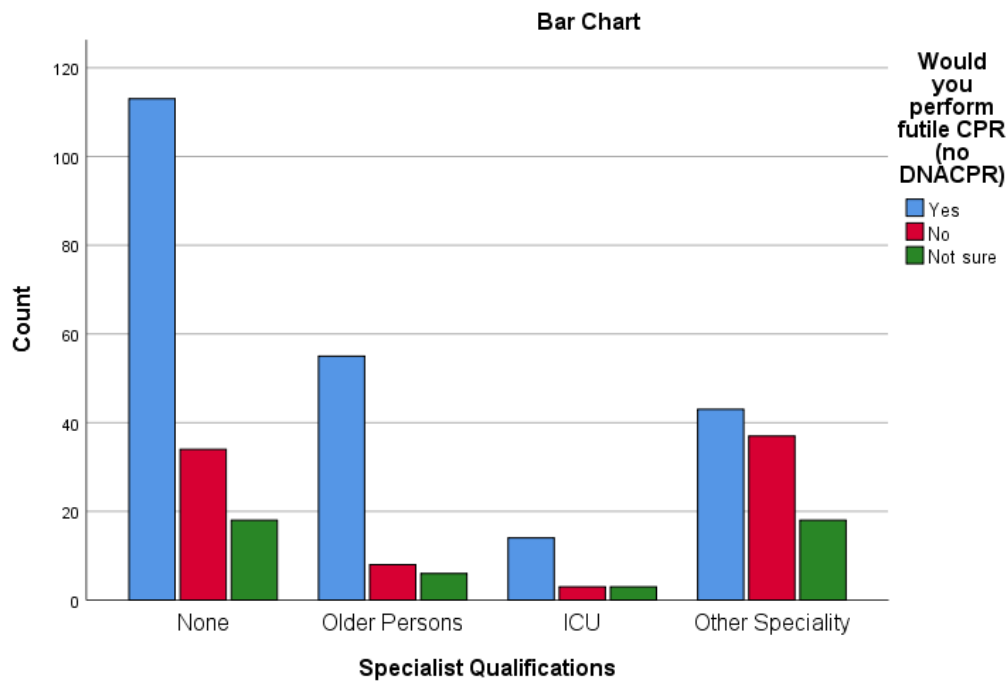
Fig 11. Bar Chart: Specialist Qualifications / Would you Perform Futile CPR?

7.8.4 Futile CPR - Experience & Education

The independence or otherwise of the responses regards futility from nurse years of experience and highest education was determined using Chi Square Tests. The null hypothesis was not rejected regards years of experience ($\chi2= 0.039$, p = 0.843) as these variables were found to be independent of each other. No relationship was found between the highest educational level of the nurses and their responses ($\chi2=5.619$, p =0.229).

7.8.5 Futile CPR - Life Support Training

A significant relationship ($\chi2=41.790$, p = <.001) was found to exist between nurse level of life support training and their responses – with those with advanced life support being the only cohort in which a majority would not be willing to perform futile CPR (Fig 12, Table 33).
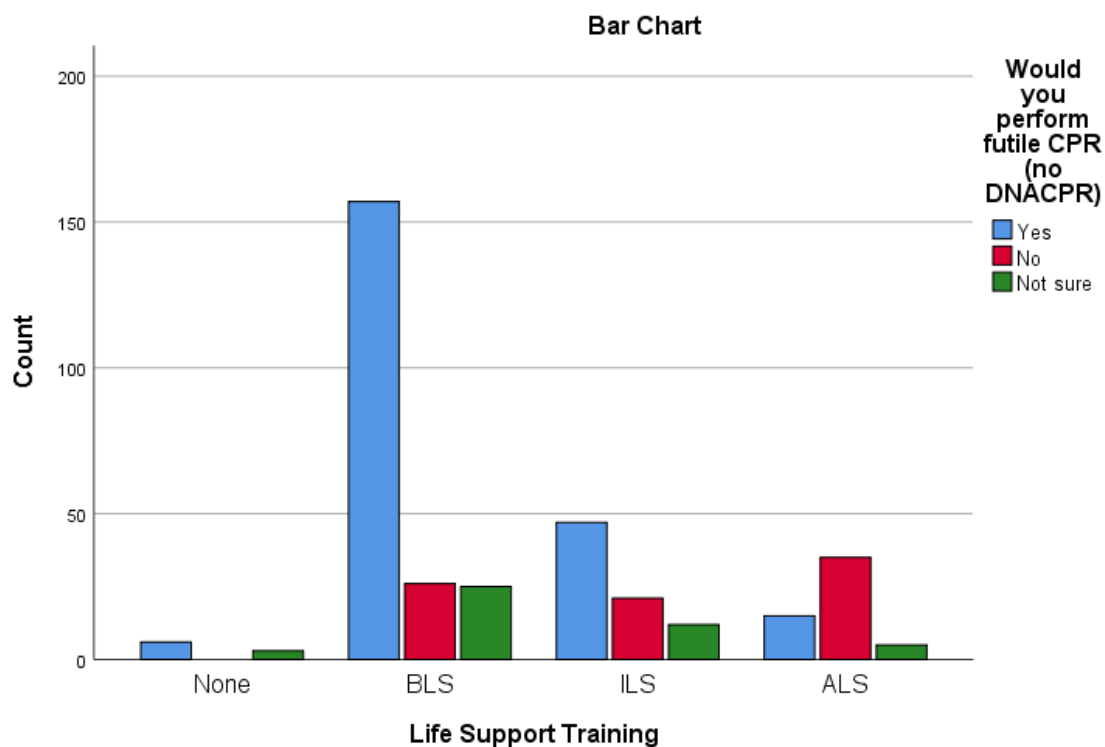
Fig 12. Bar Chart: Life Support Training / Would you Perform Futile CPR

Table 33. Crosstabulation: Life Support Training / Would you Perform Futile CPR?					
		Would you perform futile CPR?			
		% Yes	% No	% Not sure	Total %
Life Support Training	None	66.6%	0%	33.4%	100%
	BLS	75.4%	12.5%	12.1%	100%
	ILS	58.7%	26.2%	15.1%	100%
	ALS	27.2%	63.6%	9%	100%
Total % All Levels of Life Support		63.9%	23.3%	12.8%	100%
Total n		225	82	45	352

7.9 The Impact of DNACPR on Treatments Other Than CPR (Overinterpretation of DNACPR)

DNACPR applies to CPR only and should not be used to determine access or eligibility for other treatments (RCN, BMA & RCUK 2016, p. 5). Nurses were asked how appropriate emergency and intensive care was for patients with a DNACPR in place. Their responses to these questions were analysed to determine if they were related or not to the same set of variables used above (gender, care setting, experience, specialist qualifications, highest education, and life support training).

7.9.1 Overinterpretation of DNACPR – Gender and Care Setting

For this analysis the aim was to identify any variables associated with a response of "true" that DNACPR prevents A&E and/or ICU admission. The first Chi Square test found no relationship between gender and response to this question ($\chi2 =0.270$, p = 0.603). However, a significant relationship was found between the care setting the nurses worked in and the responses to this question ($\chi2=30.974$, p = < 0.001) with nurses who worked in nursing homes more likely to believe DNACPR prevents A&E or ICU admission. This was the first finding of the care setting the nurse worked in being associated significantly with their response to any question (Fig 13).
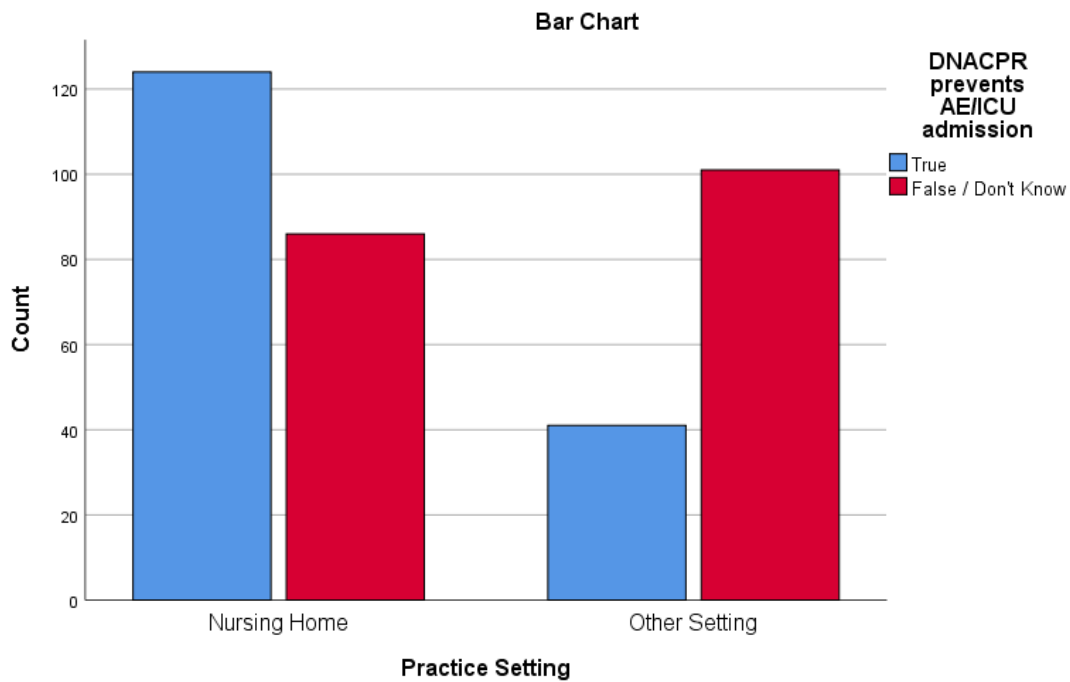
Fig 13. Bar Chart: Care Setting / DNACPR Prevents A&E / ICU Admission

7.9.2 Overinterpretation of DNACPR – Years of Experience & Specialist Qualifications

The same Chi Square test was conducted regards years of experience and specialist qualifications. No relationship was found between years of experience and response ($\chi2=1.544$, p =0.214), but a significant association was found with specialist qualifications ($\chi2=51.986$, p = < 0.001) – repeating the pattern of those with ICU and other specialist qualifications being more likely to respond in alignment with professional guidelines than those with a qualification in older person's nursing, or no specialist qualification (Fig 14, Table 34).
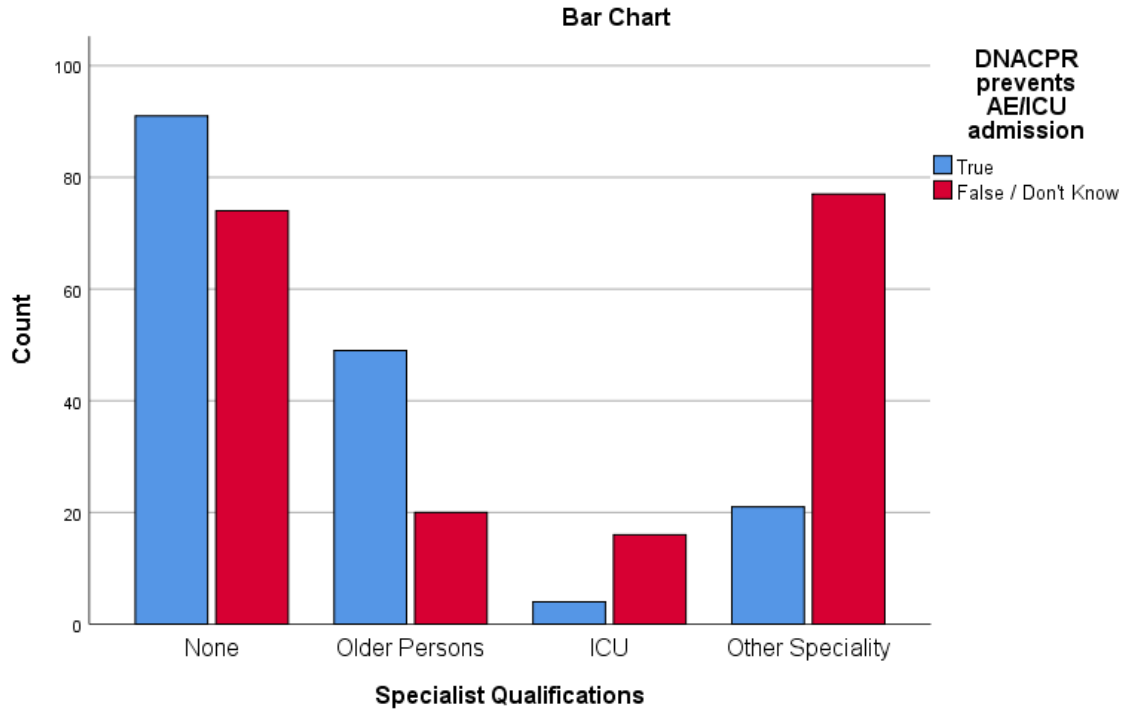
Fig 14. Bar Chart: Specialist Qualifications / DNACPR Prevents A&E / ICU Admission

Table 34. Crosstabulation: Specialist Qualifications / DNACPR Prevents A&E / ICU Admission		DNACPR prevents AE/ICU admission		
		% True	% False / Don't Know	Total %
Specialist Qualifications	**None**	55.1%	44.9%	100%
	Older Person's	71%	29%	100%
	ICU	20%	80%	100%
	Other Speciality	21.4%	78.6%	100%
Total % All Specialities		46.8%	53.2%	100%
Total n		165	187	352

7.9.3 Overinterpretation of DNACPR – Highest Level of Education

The next Chi Square test looked for an association with the highest level of nurse education, rather than the speciality of that education, and the responses to the same question. A significant relationship was found ($\chi2$= 18.307, p = 0.001) and when analysed with an Exact Test the P value was lower (p = < .001). The Fishers Exact test was used because the cell count in the crosstabulation was less than 5 in 30% of counts – and the Chi Square works on the assumption that not less than 25% of cell counts are less than 5 (Fig 15, Table 35).
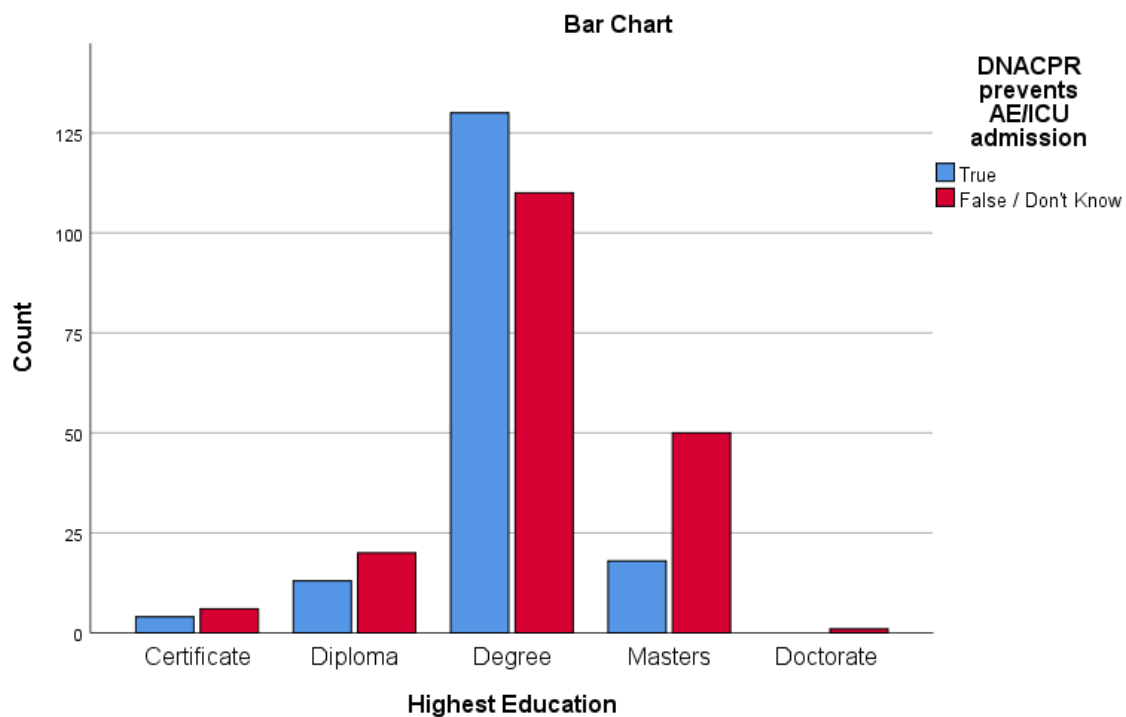
Fig 15. Bar Chart: Highest Education / DNACPR Prevents A&E / ICU Admission

Table 35. Crosstabulation: Highest Education / DNACPR Prevents A&E / ICU Admission				
		DNACPR prevents AE/ICU admission		
		% True	% False / Don't Know	Total
Highest Education	Certificate	40%	60%	100%
	Diploma	39.3%	60.7%	100%
	Degree	54.1%	45.9%	100%
	Masters	26.4%	73.6	100%
	Doctorate	0%	100%	100%
Total % All Levels of Education		45.5%	54.4%	100%
Total n		165	187	352

7.9.4 Overinterpretation of DNACPR – Life Support Training

Finally, the null hypothesis that the nurse level of life support training was unrelated to their responses regards the impact of DNACPR on treatment in emergency or intensive care was tested using the Chi Square test. A significant relationship ($\chi2$= 65.277, p = <0.001), following a similar pattern of the relationships found already between advanced life support and responses aligned to best practice guidance was found. Specifically, the higher the level of life support training the less likely the nurse was to respond DNACPR prevents care in A&E or ICU (Fig 16).
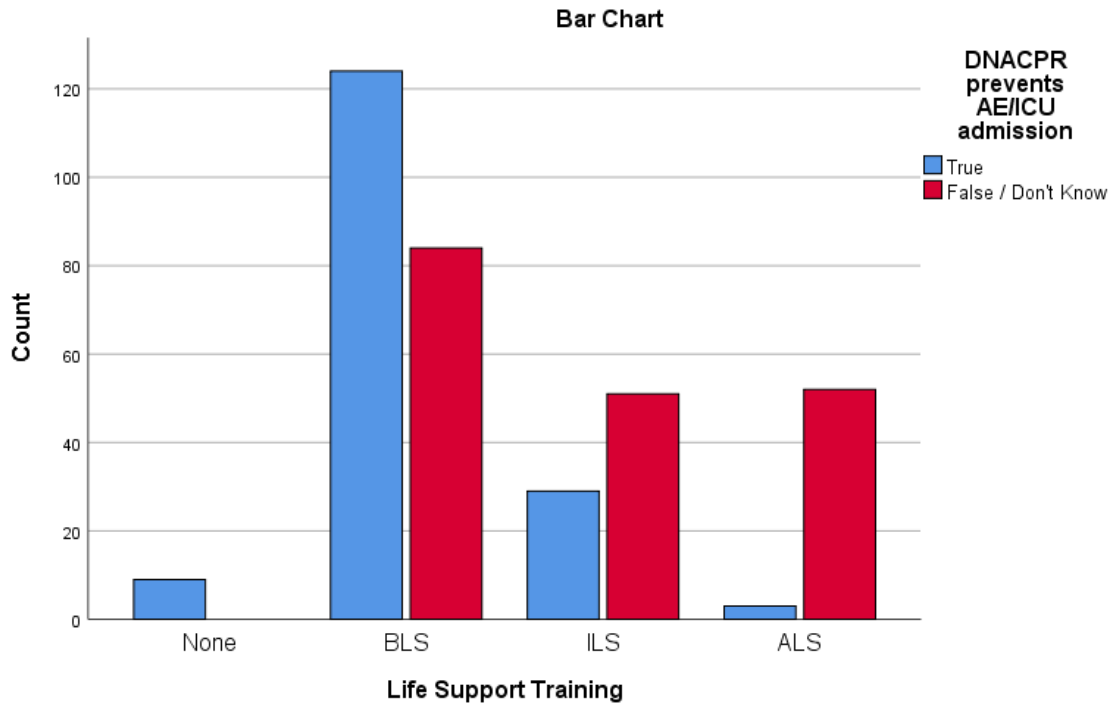
Fig 16. Bar Chart: Life Support Training / DNACPR Prevent A&E / ICU Admission

7.10 Patient Scenario Related Results

The patient scenario section of the questionnaire asked what the highest priority would be after reading the scenarios in each of four vignettes, those priorities being to resuscitate the patient or not. The vignettes were informed by the qualitative findings related to patients. The broadly 50:50 split of responses to resuscitate versus not resuscitate in each case was descried earlier in the frequencies (Table 24, p. 81). The next stage was to assess if any nurse variables were related to those responses.

Tests were conducted for the scenarios described in each vignette (1 to 4) looking for any relationship between nurse related variables and their responses. The "correct" response to each scenario was taken to be that aligned to the extant guidance on decisions related to CPR at the time. It is stressed again that this was not the same as there being a consensus on a clinically correct response. The responses are set out below in Table 36 – along with the percentages of the 352 respondents who for each scenario responded that they would resuscitate the patient. The nurses were found to be almost evenly divided in their judgement of each scenario.

Table 36. Responses to Vignettes		
Scenario	**"Correct" Response**	**% Respondents who would Perform CPR**
Scenario 1	Provide Palliative Care	42%
Scenario 2	Provide Palliative Care	45%
Scenario 3	Start CPR and call for help	42%
Scenario 4	Start CPR and call for help	55%

The focus of the analysis for each scenario was to test the null hypothesis that the responses across all four vignettes were independent of any other variable *i.e.,* respondent gender, care setting, experience, qualifications, education and life support training. For the purposes of the analysis the responses were grouped into those which equated to resuscitating the patient and those that did not.

7.10.1 Patient Scenario 1

"*A 75-year-old man with terminal cancer is under your care. You were told at handover that he has a valid DNACPR. You have not seen the DNACPR form but the nurse handing over to you confirmed verbally the patient and his family discussed it with her earlier that day. You are called to the bathroom by another patient and the gentleman is unresponsive and in cardiac arrest*."

This vignette was a scenario in which the patient comorbidities were described in such a way as to clearly indicate the patient's condition was terminal – and therefore that CPR would be of limited benefit, and in any event have been unlikely to be successful. Gender, care setting, and years of experience were not found to be associated with nurse response to Scenario 1 using Chi-Square tests (Table 37).

Table 37. Summary Analysis of Nurse Response to Scenario 1		
	χ2	p
Gender	0.693	0.405
Care Setting	1.920	0.166
Experience	1.421	0.233
Specialist Qualifications	**13.504**	**0.004**
Highest Education	3.004	0.557
Life Support Training	**17.364**	**0.001**

A relationship was found between nurse specialist qualification (χ2=13.504, p = 0.004) and their response. Nurses with ICU qualifications were the only specialist group more likely to resuscitate this patient than not (the 'wrong' choice in this scenario) (Figure 17, Table 38).
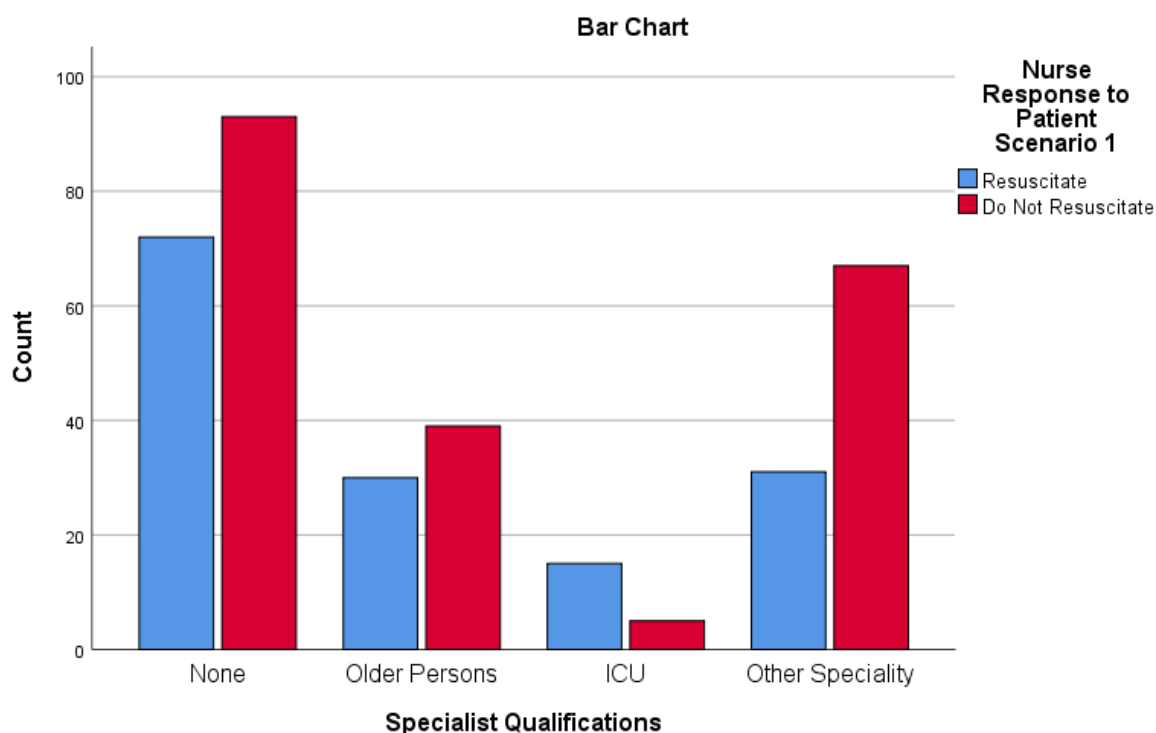
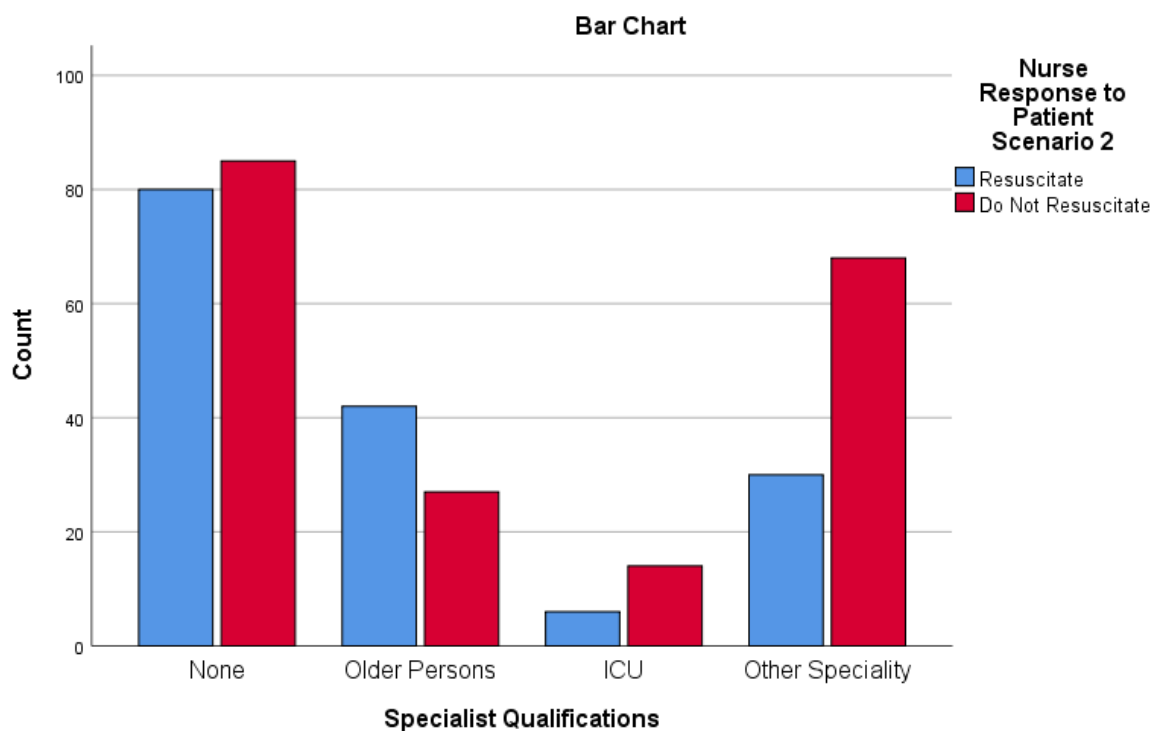**Fig 17. Specialist Qualifications / Nurse Response to Patient Scenario 1**

Table 38. Crosstabulation: Specialist Qualifications / Nurse Response to Patient Scenario 1		Nurse Response to Patient Scenario 1		
		% Resuscitate	% Do Not Resuscitate	Total %
Specialist Qualifications	None	43.6%	56.4%	100%
	Older Person's	43.4%	56.5%	100%
	ICU	75%	25%	100%
	Other Speciality	31.6%	68.4%	100%
Total % All Specialities		42%	58%	100%
Total n		148	204	352

While there was no relationship found between the highest level of nurse educational attainment and their response to Scenario 1 ($\chi2$ =3.004, p=0.577), a significant association was found between their level of life support training and their response ($\chi2$=17.341, p = < 0.001). Here, nurses who had advanced life support training were the least likely to resuscitate the patient, the "correct" response (Fig 18, Table 39).
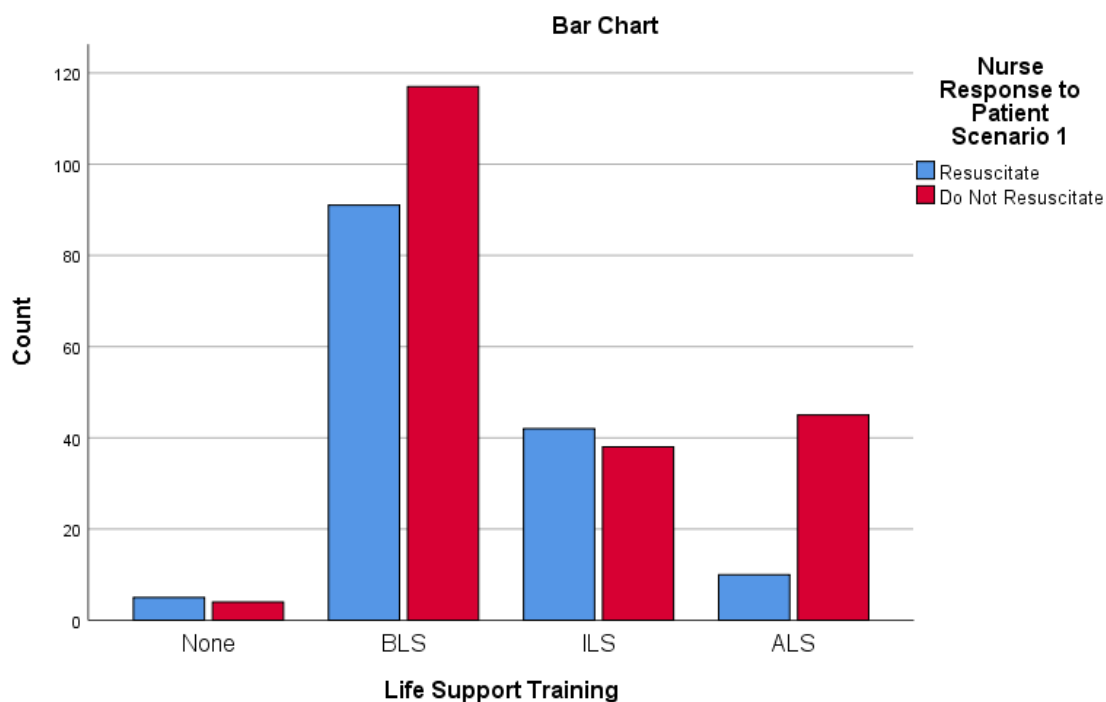
Fig 18. Bar Chart: Life Support Training / Nurse Response to Patient Scenario 1

Table 39. Crosstabulation: Life Support Training / Nurse Response to Patient Scenario 1				
		Nurse Response to Patient Scenario 1		
		% Resuscitate	% Do Not Resuscitate	Total %
Life Support Training	None	55.5%	44.5%	100%
	BLS	43.7%	56.3%	100%
	ILS	52.5%	47.5%	100%
	ALS	18%	82%	100%
Total % All Levels of Life Support		42%	58%	100%
Total n		148	204	352

It was noted above that 12.5 % of the cells had a count of less than 5, but this was below the 20% which would indicate a Fisher's Exact Test would have been preferable – to deal with lower cell counts. Also, the P-Value was in any event much lower than the 0.05 which might have indicated a test more suited to lower cell counts might have been required.

7.10.2 Scenario 2

"*An 82-year-old lady with end stage dementia and end stage renal failure is under you care. It is reported to you at handover that the patient's doctor and family agreed a DNACPR should be in place. This discussion was recorded in the notes and you are shown the record of the agreement. The doctor has not completed the DNACPR form and it is recorded that this will be done the next day. Before the actual form is completed the patient has a cardiac arrest and you are first on the scene.*"

The second vignette contained a scenario constructed as an instance in which a multidisciplinary decision had been made that CPR would not be appropriate for the patient. No association was found between nurse gender, years of experience or care setting and their response to Scenario 2 (Table 40).

Table 40. Summary Analysis of Nurse Response to Scenario 2		
	χ2	p
Gender	2.753	0.097
Care Setting	1.571	0.210
Experience	2.019	0.155
Specialist Qualifications	**17.852**	**<0.001**
Highest Education	**14.128**	**0.007**
Life Support Training	**30.603**	**<0.001**

A significant association was found between the specialist qualifications of the nurse and their response (χ2= 17.852, p = <.001). Nurses who had a specialist qualification in older person's nursing were the only group, by speciality, in which the majority responded that they would resuscitate the patient *i.e.,* the 'wrong' choice (Fig 19, Table 41).

Fig 19. Bar Chart: Specialist Qualifications / Nurse Response to Patient Scenario 2

Table 41. Crosstabulation: Specialist Qualifications / Nurse Response to Patient Scenario 2				
		Nurse Response to Patient Scenario 2		
		% Resuscitate	% Do Not Resuscitate	Total %
Specialist Qualifications	None	48.5%	51.5%	100%
	Older Person's	60.9%	39.1%	100%
	ICU	30%	70%	100%
	Other Speciality	30.6%	69.4%	100%
Total % All Specialities		44.9%	55.1%	100%
Total n		158	194	352

It was found that nurses educated at masters level and above were more likely not to resuscitate the patient in Scenario 2 (the "correct" response), see Fig 20 below.
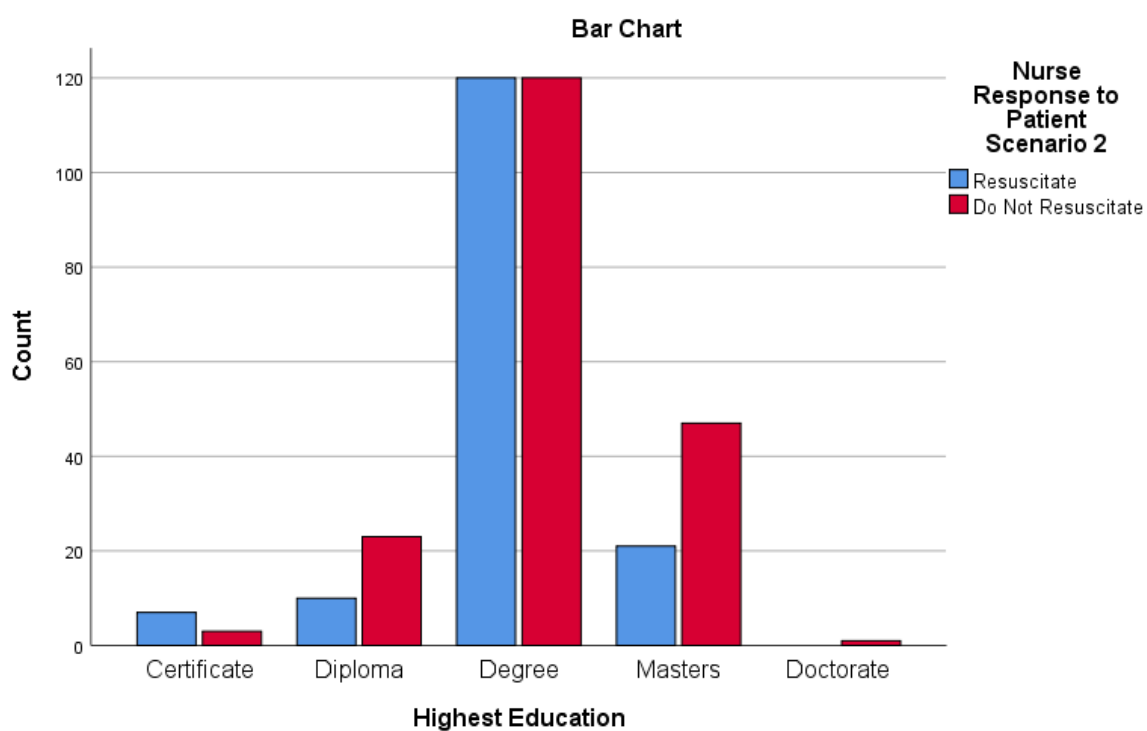
Fig 20. Nurse Response to Patient Scenario 2 / Highest Educational Attainment

It was found that, as with Scenario 1, a significant relationship existed between the level of life support training the nurse had and their response ($\chi 2$ = 30.603, p = <.001). Most nurses with no or basic life support training responded that they would resuscitate the patient in Scenario 2, while the majority of nurses with intermediate and advanced life support responded that they would not resuscitate the patient – the "correct" response (Fig 21, Table 42).
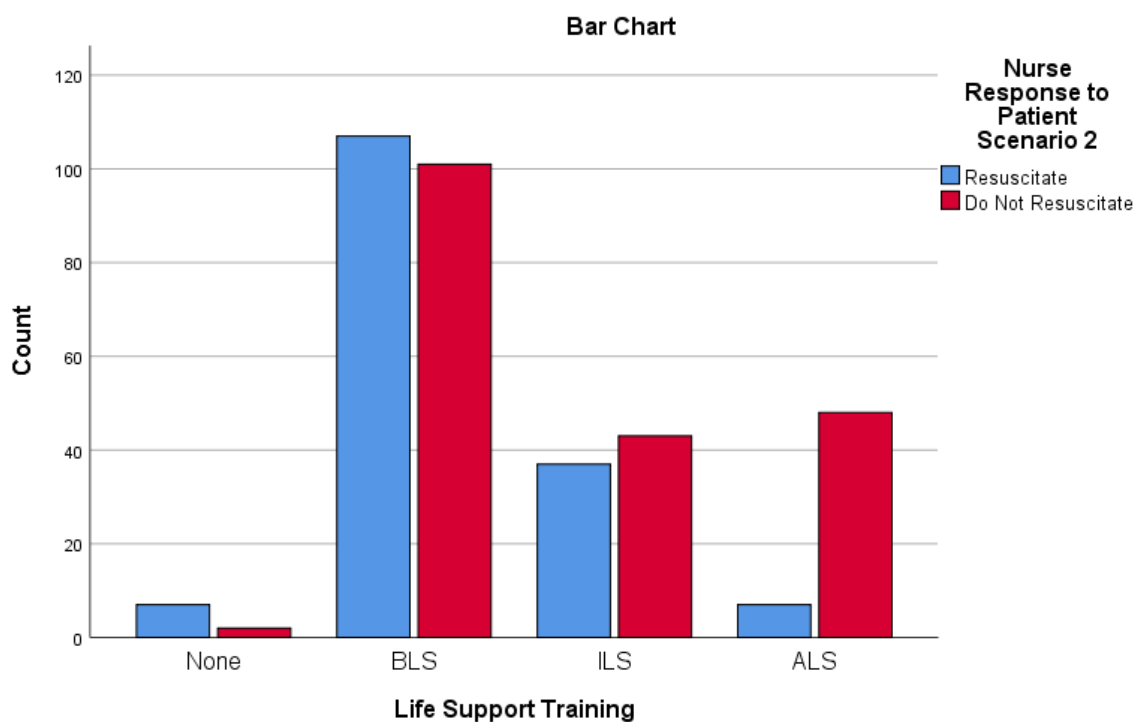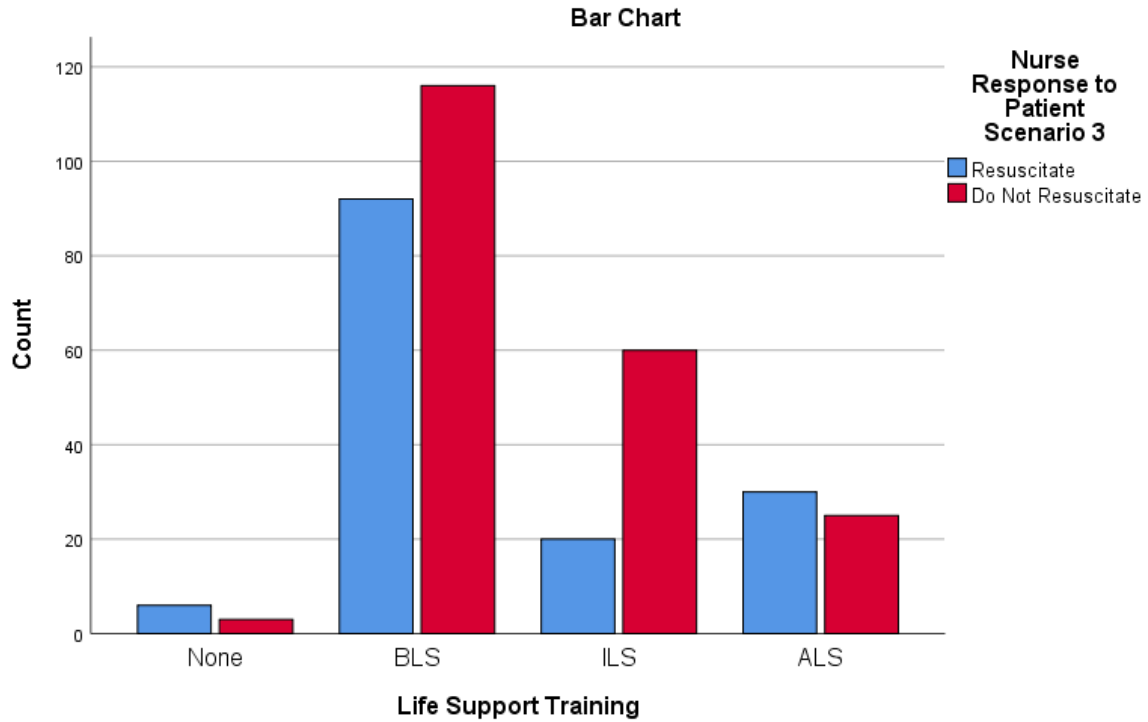

Fig 21. Bar Chart: Life Support Training / Nurse Response to Patient Scenario 2

Table 42. Crosstabulation: Life Support Training / Nurse Response to Patient Scenario 2				
		Nurse Response to Patient Scenario 2		
		% Resuscitate	% Do Not Resuscitate	Total %
Life Support Training	**None**	77%	23%	100%
	BLS	51%	49%	100%
	ILS	46.6%	53.4%	100%
	ALS	13%	87%	100%
Total % All Life Support Levels		45%	55%	100%
Total n		158	194	352

7.10.3 Patient Scenario 3

"You are caring for an 87-year-old lady who has multiple co-morbidities including end stage heart failure and Alzheimer's disease. She has a valid DNACPR form which you have seen and are happy with. She does not have capacity and as a result her son signed the DNACPR form with the doctor. The patient is found unresponsive when you are the only nurse on duty. The patient's daughter is present and asks that you resuscitate her mother."

Vignette 3 described a scenario in which a person who lacked capacity was advocated for by a relative, albeit contrary to a previously recorded decision - a situation in which a presumption in favour of CPR should be made. A summary analysis is at Table 43. A significant association was found between the gender of the nurse and their response (χ2 =5.168, p = 0.023) (Fig 22, Table 44).

Table 43 Summary Analysis of Nurse Response to Scenario 3		
	χ2	p
Gender	5.168	0.023
Care Setting	27.220	<0.001
Experience	0.591	0.442
Specialist Qualifications	29.968	<0.001
Highest Education	3.001	0..545
Life Support Training	15.712	0.001
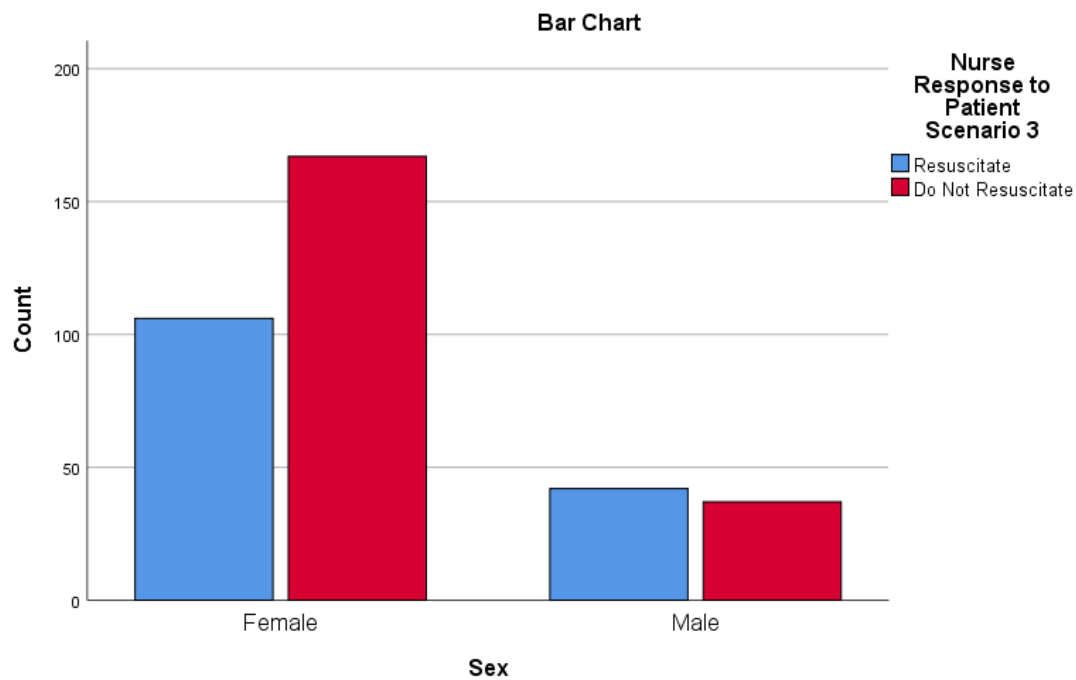
Fig 22. Bar Chart: Gender / Nurse Response to Patient Scenario 3

Table 44. Crosstabulation: Gender / Nurse Response to Patient Scenario 3				
		Nurse Response to Patient Scenario 3		
		% Resuscitate	% Do Not Resuscitate	**Total %**
Gender	**Female**	38.9%	61.1%	100%
	Male	53.1%	46.9%	100%
Total % Male and Female		42%	58%	100%
Total n		148	204	352

There was also a significant association found between the care setting the nurses worked in and their responses ($\chi 2$= 27.220, p = <0.001) with nurses in nursing homes less likely to respond correctly than nurses from other settings. An association was also found at a significant level between response and specialist qualifications ($\chi 2$ =29.968, p = < 0.001) with nurses who had qualifications in older person's nursing being the only group, by speciality, in which the majority gave the "correct" response (Fig 23).
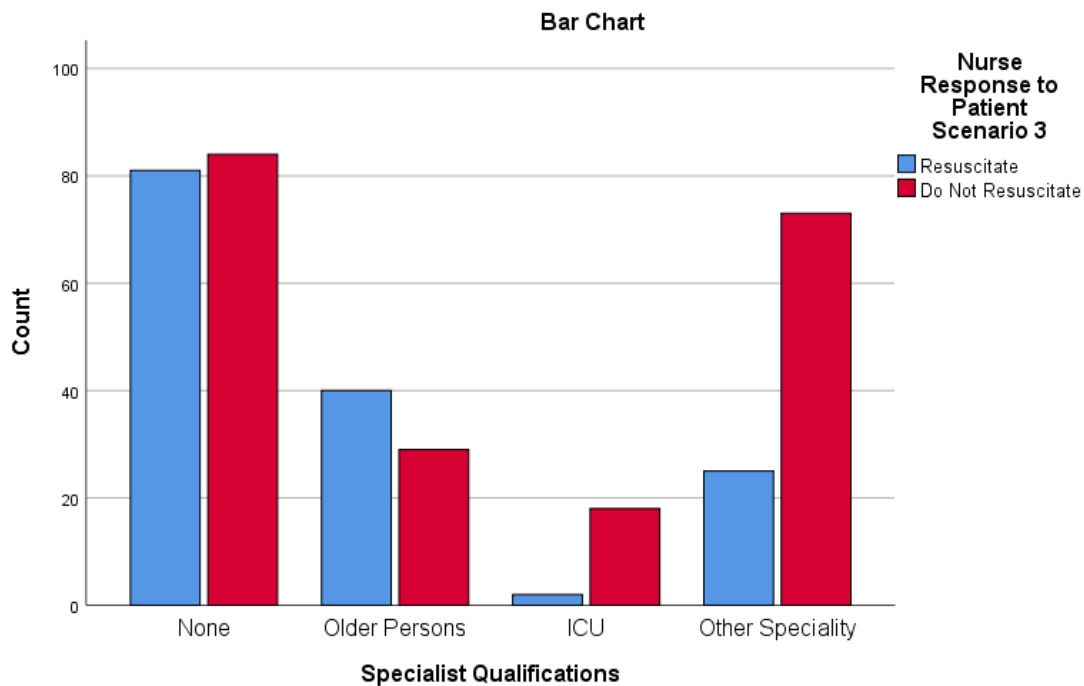
Fig 23. Bar Chart: Specialist Qualifications / Nurse Response to Patient Scenario 3

No relationship was found between highest nurse educational level and their responses, but the consistent pattern of a strong association between life support training and response continued ($\chi2$= 15.712, p = 0.001). Nurses who had advanced life support training were the only group by training level in which the majority gave the "correct" response (Fig 24, Table 45).

Fig 24. Bar Chart: Life Support Training / Nurse Response to Patient Scenario 3

Table 45. Crosstabulation: Life Support Training / Nurse Response to Patient Scenario 3				
		Nurse Response to Patient Scenario 3		
		% Resuscitate	% Do Not Resuscitate	**Total %**
Life Support Training	**None**	66.6%	33.4%	100%
	BLS	44.3%	55.7%	100%
	ILS	25%	75%	100%
	ALS	54.4%	45.6%	100%
Total % All Life Support Levels		42%	58%	100%
Total n		148	204	352

7.10.4 Patient Scenario 4

"You have just started work and are immediately called by a junior colleague to a patient who is unwell. You do not know the patient, but your colleague advises that the 79-year-old was diagnosed with prostate cancer last year and recently stopped therapy for this. The patient notes are at the bedside and indicate the patient also has chronic COPD. There is a completed DNACPR form in the notes which is signed by the patient himself and a doctor but is dated two years earlier. The patient becomes unresponsive and is in cardiac arrest."

The scenario described in vignette 4 was constructed as an example of a circumstance when a patient had an old DNACPR form which was put in place in a context other than that in which the patient had a cardiac arrest. A summary analysis is at Table 46.

Table 46. Summary Analysis of Nurse Response to Scenario 4		
	χ2	p
Gender	1.446	0.229
Care Setting	**29.451**	**<0.001**
Experience	0.302	0.582
Specialist Qualifications	**33.742**	**<0.001**
Highest Education	2.214	0.098
Life Support Training	4.213	0.239

While no association was found related to the gender of the nurse a significant association was found between the care setting the nurse worked in and their response (χ2= 29.451, p = <.001). It was found that the nurses who worked in nursing homes were more likely to give the "correct" response – to start CPR and resuscitate the patient (Fig 25, Table 47).
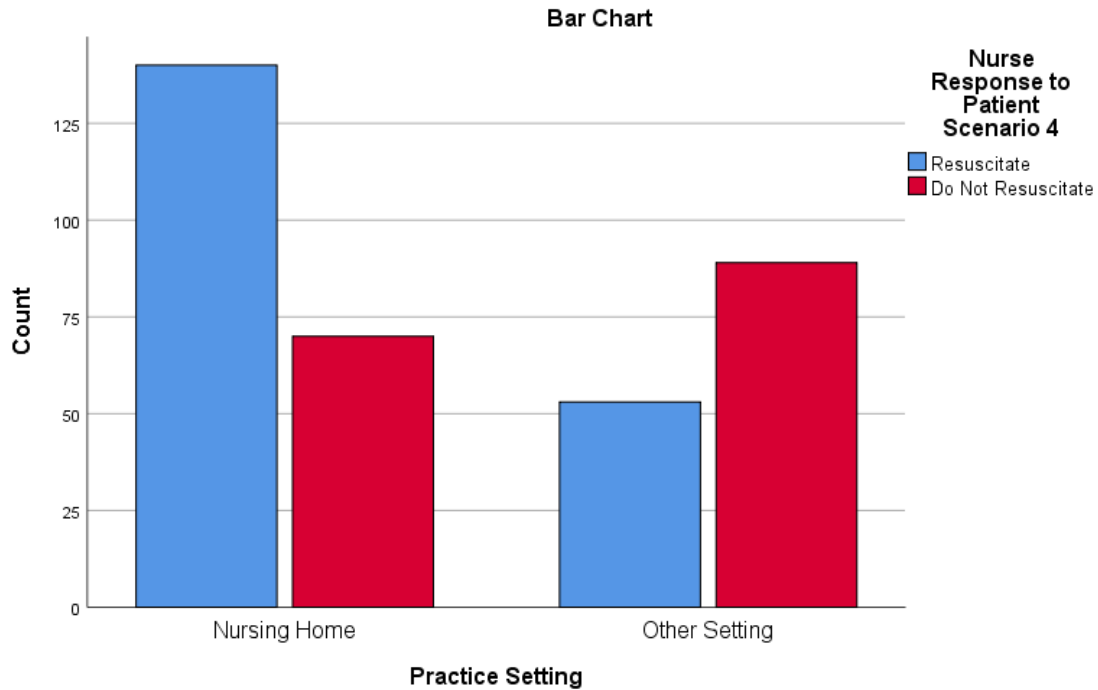
Fig 25. Care Setting / Nurse Response to Patient Scenario 4

Table 47. Crosstabulation: Care Setting / Nurse Response to Patient Scenario 4		Nurse Response to Patient Scenario 4		
		% Resuscitate	% Do Not Resuscitate	Total %
Care Setting	Nursing Home	66.6%	33.4%	100%
	Other Setting	37.3%	62.7%	100%
Total % All Settings		54.8%	45.2%	100%
Total n		193	159	352

While the responses to this scenario were found to be independent from nurse years of experience, a relationship was found between the nurses having specialist qualifications and their responses to Scenario 4 ((χ2=33.742, p = <.001) (Fig 26, Table 48).
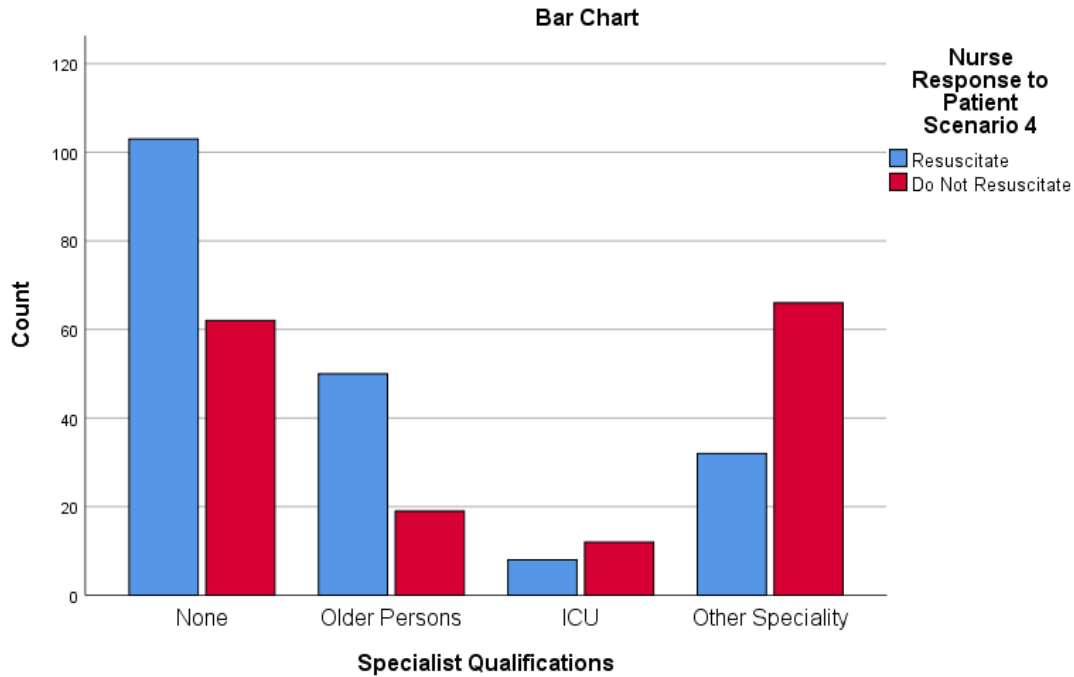
Fig 26. Bar Chart: Specialist Qualifications / Nurse Response to Patient Scenario 4

Table 48: Crosstabulation: Specialist Qualifications / Nurse Response to Patient Scenario 4		Nurse Response to Patient Scenario 4		
		% Resuscitate	% Do Not Resuscitate	Total %
Specialist Qualifications	None	62.4%	37.6%	100%
	Older Person's	72.4%	27.6%	100%
	ICU	40%	60%	100%
	Other Speciality	32.6%	72.6%	100%
Total % All Specialities		39.4%	60.6	352
Total n		193.0	159.0	352.0

Finally, for Scenario 4, the nurse responses were crosstabulated with their highest educational level and level of life support training. No relationship was found between either of these variables and the responses.

The results of the analysis presented so far can be considered in two groups of findings. Firstly, findings that considered responses to individual questions in isolation to any other variable.

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These findings revealed either a division of opinion across the sample population, or highly varied understanding of DNACPR. Secondly, there were findings which revealed when variables were found to be related to responses and how significant those associations were. While these findings cannot be accepted from a cause-and-effect perspective as in an RCT with discreet or continuous variables, they are nonetheless of potential importance to practice. The p-values are presented in summary below (Table 49), allowing all of the relationships identified between variables and responses to be viewed together.

Table 49. Summary of Chi-Square Determined Relationships between Variables and Nurse Responses

	Nurse Gender	Nurse Care Setting	Nurse Experience	Nurse Specialist Qualifications	Nurse Education Level	Nurse Life Support Training
Legality	P = 0.690	P = 0.079	P = 0.078	**P = <0.001**	**P = 0.009**	**P = <0.001**
Futility	P = 0.989	P = 0.070	P = 0.843	**P = <0.001**	P = 0.229	**P = <0.001**
AE&ICU	P = 0.603	**P = <0.001**	P = 0.214	**P = <0.001**	**P = 0.001**	**P = <0.001**
Scenario 1	P = 0.405	P = 0.166	P= 0.233	**P = 0.004**	P = 0.557	**P = <0.001**
Scenario 2	P = 0.097	P = 0.210	P = 0.155	**P = <0.001**	**P = 0.007**	**P = <0.001**
Scenario 3	**P = 0.023**	**P = <0.001**	P = 0.442	**P = <0.001**	P = 0.545	**P = 0.001**
Scenario 4	P = 0.229	**P = <0.001**	P = 0.582	**P = <0.001**	P = 0.098	P = 0.239

By comparing the p-values from each of the Chi Squares the results in Table 49 indicate that nurse qualification and life support training were consistently related to responses to the questionnaire (p-values <0.05 shaded in green), although not always in the same direction. The latter point being particularly relevant regarding the relationship between care setting and specialist qualifications and responses to the patient scenarios.

7.11 Logistic Regression Results

Logistic regressions were used to model which nurse variables predicted questionnaire responses for two questions related to carrying out futile CPR and overinterpretation of DNACPR. Logistic regression (rather than linear regression) was used as responses were categorical and binary (yes/no) (Bewick *et. al.* 2005).

Logistic regression models for each outcome were created including five blocks adding factors to determine if they were or were not independent predictors of a defined response. The factors were added in order of the significance of the findings summarised in Table 49 above, p. 115.

What that meant was that "specialist qualifications" was added in step one of the regressions because it was found to be significantly associated with nurse responses to all three questions sensitive to risk of harm (legality, futility, A&E/ICU) and all four patient scenarios. Level of life support training was added in step two of the model being next most significant – only being found unrelated to responses to the fourth patient scenario. Step three of the regression added care setting and step four the highest educational level of the nurses. While years of experience were not found to be associated significantly in any way with questionnaire responses – this was added as a fifth step in the model due to its prominence in literature related to ways of knowing in nursing. The values per variable within the model included whether the nurse had specialist postgraduate qualifications or not, level of life support training (none, basic, intermediate or advanced), practice setting (nursing home or other), highest education (Cert/Dip, BSc, MSc, doctorate) and years qualified (less than one year, one to five years, six to ten years – finally eleven or more years).

This model was applied in analysis of yes/no responses to a) futility (reference category being "no" that the nurse would not knowingly carry out futile CPR) and b) nurse response of "false", *i.e.*, that DNACPR does not prevent treatment in A&E or ICU. The rationale for selecting these two dependent variables was that they represent risk of the two types of harm associated with DNACPR described in Chapter1, p. 4 and reflected in the phase one findings on risk of harm, Section 6.10, p. 72.

7.11.1 Logistic Regression Futile CPR

The purpose of the first logistic regression was to assess which nurse related variables were independent predictors of response to the question: "would you perform futile CPR?". Specifically, the reference category was a response of "No" and the results are below (Table 50).

Table 50. Logistic Regression - Futile CPR				
	Odds	95% C.I.for Odd Ratio		P-Value
	Ratio	Lower	Upper	
Specialist Qualifications	1.484	1.209	1.822	**<0.001**
Life Support Training	2.569	1.866	3.536	**<0.001**
Practice Setting	0.946	0.562	1.592	0.835
Highest Education	0.888	0.610	1.293	0.536
Years Qualified	0.682	0.223	2.084	0.502
Constant	0.167			0.166

The coefficient of determination for the above model found that 20% of the observed variation in the dependent variable was explained (R^2 = 0.201). It was found that specialist qualifications (B = 0.395. P = <0.001) and life support training (B = 0.943, P = <0.001) were significant predictors of nurses not performing futile CPR. In logistic regression odds ratios represent the constant effect of a predictor on the likelihood of, in this case a nurse response of "no". Odds ratios of >1 were found for the two independent variables meaning they were contributing significantly to the model, indicating increased odds of responding that they would not perform futile CPR. For every unit increase in life support training (*i.e.,* from none to BLS to ILS to ALS) the likelihood of the respondent not performing futile CPR increases by 2.5, meaning those with advanced life support training were found to be 7.5 times more likely to give the right response than those with no training. Those with specialist postgraduate qualifications were 1.4 times more likely to respond correctly than those with no specialist qualification.

7.11.2 Logistic Regression Overinterpretation of DNACPR

The purpose of the second logistic regression was to assess which nurse related variables were independent predictors of true or false response to the question "DNACPR prevents treatment in A&E/ICU". Specifically, the reference category was a response of "false". The results are below at Table 51.

Table 51. Logistic Regression - Overinterpretation of DNACPR		Odds Ratio	95% C.I.for EXP(B)		P – Value
			Lower	Upper	
	Specialist Qualifications	1.546	1.248	1.916	**<0.001**
	Life Support Training	3.769	2.537	5.601	**<0.001**
	Practice Setting	2.371	1.396	4.026	**0.001**
	Highest Education	1.149	0.770	1.716	0.496
	Years Qualified	1.149	0.361	3.651	0.814
	Constant	0.010			0.001

The coefficient of determination for the above model found that over 30% of the observed variation in the dependent variable was explained (R^2 = 0.352). It was found that specialist qualifications (B = 0.436, P = <0.001), life support training (B = 1.327, P = <0.001) and practice setting (B = 0.863, P = 0.001) were significant predictors of nurses responding that it was false to consider DNACPR prevents A&E or ICU treatment. Nurses with advanced life support training were 11.1 times more likely to believe that DNACPR does not prevent A&E or ICU treatment than those with no training. Nurses with specialist qualifications were 1.5 times more likely to respond correctly than those with no specialist qualification. Nurses working in settings other than nursing homes were 2.3 times more likely to respond correctly than those from nursing homes.

The effect on overall goodness of fit at each step of the regression models is summarised by the R^2 values for each step (Table 52).

Table 52. R Square Values at Steps 1 to 5 of Logistic Regressions		
Logistic Regression Steps	Futile CPR	Overinterpretation of DNACPR
	R Square	R Square
Step 1 Specialist Qualifications	0.072	0.125
Step 2 Advanced Life Support	0.199	0.323
Step 3 Practice Setting	0.199	0.351
Step 4 Highest Education	0.200	0.352
Step 5 Years of Experience	0.201	0.352

For each of the two models the R^2 increased only marginally with the non-significant variables removed (to $R^2 = 0.243$ for futile CPR and to $R^2 = 0.369$ for overinterpretation of DNACPR), indicating a slightly improved goodness of fit.

7.12 Summary of Quantitative Results

The scheme of statistical analysis first used Chi Squares, then logistic regressions. The Chi Squares each looked at one nurse variable and responses to one DNACPR related question reflecting the themes and subthemes found in phase one. This analysis showed which nurse variables were statistically related to questionnaire responses and which were not (Table 49, p. 115). These relationships were not in a specific direction though and so could not inform practice development by themselves. For that reason, two logistic regressions were built. These took all the statistically significant relationships from the Chi Squares and added them into two regression models. The regressions were built because unlike the Chi Squares they could determine which nurse variables were predictors of risk of harm associated with DNACPR (required to answer research question two). They did this by focusing on question responses with the potential to pose a risk *e.g.*, that DNACPR prevents A&E and ICU treatment. The regressions determined that nurses with ALS or specialist qualifications had a better understanding of DNACPR and so were less likely to give responses associated with risk of harm. Had the regressions not been part of the scheme of analysis research question two would not have been answered. While the data collected may seems large it was the smallest possible for the population size and the 95% confidence level and 5% margin of error required.

Chapter 8 Discussion

8.1 Summary of Findings

The scoping review concluded that while there was some evidence on nurse understanding of DNACPR there remained gaps in the evidence (Chapter3, p. 31). There were no studies including real-world DNACPR decisions made by nurses in the UK. While there was evidence that some nurse variables might influence nurse understanding, how that impacts risk of harm had not been determined. Based on this the research questions were finalised to produce evidence currently lacking in the literature:

1. What do nurses understand about DNACPR, and decisions related to CPR?

2. How do those understandings impact the care nurses provide and risk of harm to patients?

The study sought to answer these questions by using a mixed-methods design, first analysing un-researched data on real-world CPR decisions made by nurses in the UK. This was conducted by reflexive thematic analysis in the first phase of the study which informed the sampling, data collection and analysis in phase three (quantitative questionnaire analysis).

On research question one, nurses who were the subject of regulatory hearings understood they had a degree of clinical freedom to make decisions about CPR. But other nurses giving evidence and the representatives of the regulator understood differently, understanding nurses have a duty to always perform CPR. This finding was consistent with the results in phase three with 55.4% (n =195) responding incorrectly that only doctors can sign DNACPR forms. Life support training was found to be a source of knowledge for the nurses themselves and an independent predictor of a better understanding of DNACPR. Most of the nurses in each sample worked in nursing homes. Only 13% of nurses working in nursing homes had advanced life support training even though they were found to be most likely to work alone.

The nurses in both samples were experienced nurses, with most questionnaire respondents having more than a decade of experience (94.9, n= 334). While years of experience was not found to be statistically significant, the longer the nurse was qualified the less likely they were found to have advanced life support training.

Over half of the nurses had a specialist post graduate qualification, most frequently older person's nursing (19.6%) and palliative care (14.2%). Only 15 % of the nurses had advanced life support training, rising to 31% of nurses working in hospitals.

On research question two, findings associated with a risk of harm included the regulatory position within the theme "expectations of nurses". That position was that nurses should in no circumstances make decisions related to DNACPR even when it was accepted that CPR is futile. In the theme "to resuscitate or not?" futility was found to be the explanation most often offered by nurses as to why they withheld CPR. In the context of the theme on "patient safety and autonomy" futility was understood to mean that CPR would be wrong, and nurses often relied on their knowledge of residents and their wishes to support that assessment. While the phase one findings broadly suggested nurses were motivated to do the right thing, results in phase three revealed that 64.5% (n = 277) said they would perform CPR even if they knew it would be futile.

The findings point to continued risk from DNACPR itself. 46.9% of participants (n = 165) reported understanding that DNACPR makes patients ineligible for emergency or critical care. The potential for over interpretation of the forms was also found within the "patient autonomy and safety theme". This was particularly evident in the prognosis subtheme where actions such as responding to deterioration, calling 999, or transferring nursing home residents to hospital were sometimes prevented by orders not to resuscitate. In terms of harm reduction advanced life support training was the most significant independent predictor of nurses understanding DNACPR. The regression analyses showed nurses with ALS training were less likely to give responses associated with a risk of harm, net of the effects of other factors such as experience. However, which specific component of ALS training that could be responsible or most important for that effect, was not determined.

Policy and patient preference were found to influence nurse decision making in practice, but this was different in respect of general day-to-day practice and DNACPR specifically. Eighty-one percent of participants reported patient preference as being an important influence on general day-to-day practice, but this decreased to 6% with respect to DNACPR. With respect to DNACPR, local policy and the NMC Code were found to be the principal influences on nurse decision making.

These findings from phase three were reflective of the emergence of policy within the theme "to resuscitate or not?". While policy was found to be understood by nurses as a useful tool to guide their practice, they did not believe it was to be uniformly applied. Nurses understood that they could override policy if their clinical assessment indicated this was the right thing to do. There was a conflicting understanding among others (witnesses and the hearing panels) that the duty of the nurse was to always follow policy. A lack of clarity on the role of policy in practice was evident. This was compounded by how many policies were found to apply to decisions about CPR. Policies relied upon were found to include life support policies, end-of-life care policies and policies on death of residents. Nurses were found to have struggled to navigate this at the bedside, with confusion on where a resident's status should have been recorded.

The findings on both research questions are connected by a strong alignment to the bioethical principles underpinning nursing practice. Nurses were found to be motivated to do the right thing for people, and to understand this as their highest priority. There were findings across all four themes and the statistical analysis that align to either autonomy, beneficence, nonmaleficence, and justice. Some of these examples were explicitly considered, for example in terms of patient rights and aligning to autonomy. Some examples were less explicit, such as the importance placed on adhering to the NMC Code. A discussion on the findings from a bioethical perspective follows along with some considerations for policy, practice, and research.

8.2 Discussion on Bioethics in Practice

Ethical questions are raised by some of the findings. Questions that unsurprisingly relate to the right to live and right to die, but also about ethics in nursing more generally. This included findings related to administering futile treatment and withholding other potentially live saving interventions. These findings are set out below in Table 53 indicating whether the finding answers research question 1 or 2 (RQ1 or RQ2).

RQ	Section	Table 53. Findings with Ethical Implications
1	6.7	Expectations of nurses. The regulatory position was found to be that nurses must always perform CPR in the absence of a DNACPR form.
1	6.8	To resuscitate or not? Nurses were found to understand futility as a sound rationale for withholding CPR and would override policy in some instances on that basis.
2	7.3	37.5% (n = 132) of nurses responded that they would perform CPR on a patient they knew to have a valid DNACPR.
2	7.3	46.9 % (n = 165) of nurses responded that DNACPR prevents treatment in A&E or ICU.
2	7.3	64.5% (n= 227) of nurses responded that they would knowingly perform futile CPR.
1	7.4	Following the NMC Code was the most frequently respondent cited duty to a patient in cardiac arrest (26.7%, n = 94).

Everyone has a right to life, in the United Kingdom this is set down in the Human Rights Act (1998). For nurses, the NMC Code (2020b. p. 6) refers to these enacted rights and requires registrants to uphold them. Withholding any potentially lifesaving treatment (for example respiratory support) because of a decision related to another intervention (for example CPR) would likely be unethical. While everyone has rights in respect of their death these are more nuanced and do not currently include the right to assisted dying. With respect to their healthcare adults with capacity have the right to decline treatment. They also have the right to expect their decision is respected, even by people who believe their decision unwise.

Assuming decision making capacity, providing an intervention such as CPR which has been expressly declined breaches this right irrespective of the likelihood of success.

8.2.1 Futility of CPR, a Bioethical Perspective

It has been reported in the literature that CPR which fails is not considered to be futile by some even if it was certain to be unsuccessful. Gordon (2015) described such CPR attempts as a form of contemporary death ritual. Futility itself has been the subject of research and policy. The Society of Critical Care Medicine Ethics Committee (Kon *et. al.* 2016) issued a policy statement that interventions unlikely to lead to survival are inappropriate. This leads to questions about the nature of survival. Surviving for how long? With what quality of life? Where? Inappropriate is also different to futile. Futile is a term which should only be used when an intervention cannot achieve its intended physiological goal (Kon *et. al.* 2016). This in the context of CPR would mean once the heart could be restarted it could not be considered futile. Vivas & Carpenter (2021) noted that a definition of futility is particularly complex for treatments that might prolong life or prolong dying. They noted significant flaws with linking definitions of futility with physiological goals. These flaws included the absence of any consideration of the personal and emotional aspects of care, and what they described as the dishonesty inherent in reducing medicine to purely physiological terms. This study supports the existing literature on futility insofar as the nurses did not consider futility in a reductionist way. That meaning the nurses were concerned with more than the prospect of the patient or resident's heart restarting.

In 2015 some jurisdictions updated their definition of the term "futile" to be purely physiological. In 1991 The American Thoracic Society regarded futility as certainty that 'meaningful survival' could not be achieved. Later in 2015 they updated their definition to mean the intended physiological goal could not be achieved (Bosslet *et. al*. 2015). Meaningful survival opens another debate involving numerous subjective value judgments.

The role of value judgements recurs in the literature pertaining to futility. The literature is predominantly medical as opposed to nursing (Cohn *et. al.* 2013, Clements *et. al.* 2014, Fritz *et. al*. 2010, 2014, Fritz & Fuld 2015). This imbalance in the literature may be because the medical profession has a well-established clinical leadership role. This contrasts with nursing

which continues to harbour uncertainty as to its scope of practice in DNACPR. The medical literature nonetheless raises relevant points. In a study by Gallo *et. al.* (2003) 90% of medical doctors surveyed said they would not want CPR if they survived but were unable to speak or recognise people. This study shows how nurses also use their own wishes as a lens for value judgments, supporting the literature pertaining to medical doctors. Nurses in this study also reflecting on what they would want for themselves or their families.

Vivas & Carpenter (2021) noted that the influence of values may be why the narrative surrounding futile treatment is a surrogate for a debate on emotional, cultural, and spiritual needs. This point is worthy of further research, and an evidenced-based solution to help nurses navigate the concept of futility in practice. Futility remaining a grey area makes it difficult for nurses to balance autonomy (respecting patient wishes) beneficence (acting compassionately) nonmaleficence (preventing harm) and justice (protecting patient's rights). The findings may indicate this is especially so when it comes to immediate decisions about CPR.

8.2.2 The Principles of Bioethics and DNACPR

In the late 1970's the framework of principlism (referred to in Chapters 2 & 3) emerged within biomedical ethics to help professionals analyse moral problems in a manner that accounted for shortfalls in the Hippocratic approach (Beauchamp & Childress 2019). The four principles within the framework are autonomy, beneficence, nonmaleficence, and justice.

These are not principles Beauchamp and Childress (2019) proposed that healthcare professionals appeal to all the time, but in times of uncertainty or moral conflict. Relationally within the "four principles" framework there was primacy of the principle of autonomy, but since the early 2000's this has been challenged (Donchin 2001).

While patients have autonomy to make decisions professionals deem unwise, they do not have a right to interventions which are inappropriate for them. A patient may want a resuscitation attempt made if they have a cardiac arrest, but they are not entitled to be resuscitated as a right. This is especially so if CPR would be harmful, nonmaleficence

requiring the nurse to avoid inflicting harm (Tuckett 2000). The complex relationship between the principles of autonomy, nonmaleficence and DNACPR may indicate the simpler Hippocratic approach is more useful to nurses for in-the-moment decision making. This could reduce regard to patient wishes though.

It is proposed here that the challenges nurses face when making decisions about CPR are caused by the ethical complexity of the subject and resulting moral conflict. Ethical complexity refers to what Kunneman (2010, p. 131) described as *"the complexity of a situation beyond its ontological or epistemological complexity"*. At the time of a cardiac arrest for a nurse they may not consider their in-the-moment decision making in terms of ethical complexity. When considering the existing literature on ethics and futility, the findings do point to the nurses experiencing complex ethical dilemmas – and this is supported by the findings of the scoping review. In the scoping review several studies found nurses struggled with the ethical complexity of decisions related to CPR including Pettersson *et. al.* (2014) and Goniewcz *et. al.* (2013).   From a critical realist perspective these are the unobservable dilemmas that shape the reality of DNACPR.

Ethical dilemma in nursing was described by Haar *et. al*. (2020, p. 258) as being as "*an individual care situation that challenges a nurse's options to act on the basis of moral ground*". Rees *et. al.* (2009) conducted a literature review of 17 studies on nurse perceptions of ethical issues and found nurses were willing to act unlawfully to overcome ethical dilemmas. There is a possibility that nursing actions are mistakenly seen as a dereliction of duty because of an incorrect understanding of the nurse's motivation.

There appears to be a perceived but false dependency on the medical profession generally and more specifically in the care of older people. The nursing workforce and regulator may be struggling to keep pace with their own profession's development. A shared understanding of nursing as heterogeneous, and some nurses as lead clinicians would create a foundation on which nurses can balance the biotechnical principles applied to DNACPR.

For nurses in their day-to-day practice the NMC Code plays an important role. The Code itself, perhaps unusually, does not speak explicitly to bioethics. This contrasts with the General Medical Council (2020) who have 36 ethical guidelines in 11 categories. The Code is

also silent on specific treatments like CPR but lists four standards of conduct (to prioritise people, practice effectively, preserve safety and promote professionalism and trust).

These standards align to the "four principles" approach to bioethics but it is unclear if this is the intention for how nurses should operate the Code. With respect to the themes "expectations of nurses" and "patient autonomy and safety" the NMC can be interpreted as understanding that nurses withholding CPR breached the latter two standards - preserving safety and promoting professionalism and trust. In contrast, the nurses in the "to resuscitate or not?" theme can be interpreted as understanding their clinical decisions being in accordance with the former two standards - prioritising people and practicing effectively. There was in essence an ethical clash within the Code caused by conflicting understandings about what was harmful or beneficial in the circumstances.

It is proposed that the regulatory interpretation of beneficence and/or justice juxtaposed the nurse's interpretation of nonmaleficence and / or autonomy. This might be resolved with explicit nursing guidelines that focus on balancing the bioethical principles, accepting they can result in competing priorities for the nurse. A DNACPR specific ethical framework based on the four bioethical principles might also provide some clarity for nurses. This could potentially be added to current life support training. Irrespective of nurse understanding the literature on futile interventions recommended they should not be performed (RCN, BMA & RCUK 2016 p. 5, White *et. al.* 2020).

The implications of futile treatment for people are associated with a risk of harm and potentially a prolongation of dying, rather than a prolongation of life. Is this the cause of the earlier described contemporary death ritual? Is that ritual more societally palatable than accepting death is not always harmful? If the regulatory position is that the scope of nursing does not extend to decisions related to CPR, is that causing nurses to commence CPR even when they know it is futile? These are potential future research questions.

The conduct of the regulatory hearings themselves, and the effectiveness of nursing regulation were not being studied. An incidental question arises as to the effectiveness of regulation. This question arises because of the potential impact on the public of broad regulatory positions being adopted that treat both nurses and patients as homogenous. The

regulatory position could be interpreted as considering death harmful in all instances. That being without regard for how harmful prolongation of dying might be.

8.2.3 Death and Dying

Jacobsen (2020, p. 1) noted the Nobel Laureate Maeterlinck wrote about the place he felt death had in life. "*Death and death alone is what we must consult about life. For us, death is the one thing that counts in our life and in our universe*". Jacobsen in "*The Age of Spectacular Death*" was less eerie but conceded death is one of the most important things in life, reassuringly suggesting life itself is most important. In his book Jacobsen noted the "*death as a taboo*" narrative itself is part of the problem. It is suggested here that far from being taboo, we hear about death all the time. We hear about death in news feeds and on social media, it is the extreme opposite of taboo. People may be so desensitised to death that they do not have the inclination to spend time discussing it. In one way or another, it will take care of itself.

Nursing could potentially solve this problem and help ensure people are having conversations that matter about dying. This can only happen with an insight into the lives lived by older people, and a primary focus on ensuring those lives are being lived well. Conversations about dying when they do happen should be personal, not theoretical and should be about how "I", "you" or "we" die. One of the important aspects of the conversation is about where we die.

Shepherd *et. al.* (2020) in a study of nurse's own preferences about dying found that 53% would like to die at home, and 41% in a hospice. Nursing homes were the least preferred option due to a perception that their wishes would not be followed. Nurses having such insight may be best placed to be the bioethical leaders when it comes to death.

Chapter 2 (p. 8) on the history of Do Not Resuscitate (DNR) orders covered how they came about to control the "*theatrical cult*" of resuscitation. Widespread resuscitation resulted from the diagnosis of cardiac arrest as a medical condition outside of controlled environments such as operating theatres. Resuscitation itself was never intended to be indiscriminately administered. DNACPR evolved as an attempt to control indiscriminate and

inappropriate resuscitation. It is proposed that DNACPR has failed to achieve its original purpose given nurses are willing to administer CPR in the presence of a DNACPR form, and to withhold CPR in the absence of a DNACPR form. An additional indication that this is the case is despite decades of debate and policy development clinical judgement is far from unified with respect to DANCPR. Even with respect to individual cases professional judgments are highly varied. It is therefore hard to conclude that after forty years DNACPR has resulted in clinical consistency.

8.3 Discussion on Ways of Knowing & Decision Making

Some findings were about ways of knowing and how nurses make decisions. A discussion on this follows because central to the study itself was a decision, to resuscitate or not? One of the four themes that emerged. Findings of relevance to decision making and ways of knowing are summarised in Table 54 below indicating whether the finding answers research question 1 or 2 (RQ 1 or 2).

RQ	Section	Table 54. Findings Related to Ways of Knowing and Decision Making
2	6.7	Expectations of nurses. Competence of the nurse in CPR and DNACPR was considered with respect to their training, including life support training.
2	6.8	To resuscitate or not? Nurse decision making on CPR drew on a range of sources including the nurses own experience and skills, peers, and guidelines.
2	7	94.9% (n =334) of nurses surveyed had more than a decade of experience.
2	7.1	46.8% (n = 165) of respondents had no post graduate specialist qualifications.
2	7.1	The most common level of life support training was basic.
2	7.4	The nurses own judgment was the highest reported influence on day-to-day decision making, followed by their prior experience.
1	7.4	The nurses most frequently cited their duty to a patient in cardiac arrest as being to follow the NMC code, followed by adhering to policy and third most frequently to make a clinical judgement.

1 & 2	7.5	Between 16.6% (vignette 2) to 32.7% (vignette 3) of respondents indicated the DNACPR form itself, rather than either providing CPR or palliative care would be their highest priority in the scenarios described.
2	7.7.5	As the highest education level of the nurse increased, so did the likelihood they correctly answered DNACPR was not legally binding.
2	7.8.5	Nurses with ALS training were they only group (by level of life support training) in which the majority would not perform futile CPR.
2	7.11	Years of experience was the only nurse variable found to be insignificant in all statistics.
2	7.11.2	Holding no postgraduate specialist qualification (as opposed to having one) and lower levels of life support training (as opposed to ALS) were found to be independent predictors of responses associated with a risk of harm.

What impact should be expected from experience, academic qualification and training with respect to decisions about CPR? Could we integrate ways of knowing for better decision making? Might we better explain the decisions to people other than the decision makers, what Oliver (2020) described as detoxifying decisions related to CPR.

Following on from the discussion on bioethics in Section 8.2.2, Carper's (1978) ethical way of knowing is a good start point. Carper (1978) described four ways of knowing in nursing, empirics, ethics, aesthetics and personal. These can be applied to some of what the nurses said about their decision making. This is particularly so with the ethical way of knowing described in 1978 as involving the choosing, justifying, and judging of actions related to moral duty and rights (Carper 1978). Some examples are proposed below by way of knowing (Table 55).

Table 55. Extracts as Examples of Ways of Knowing	
Empiric	T4 My clinical observations at the time informed me…
Ethical	T19 I did not feel that the policy was appropriate in the circumstances…
Aesthetic	T16 When he found the patient unresponsive, he did not think he should resuscitate
Personal	T14…unacceptable probability of brain damage even if successful, something I would find very hard to live with and would not want for my own family…

Carper's (1978) ways of knowing have been accepted in the literature and reimagined by others as described by Zander (2007). Zander (2007) noted that Carper (1978) did not consider experience a way of knowing. This study could be considered as supportive of that position, with the experience in years of the nurses not having a bearing on how well they understood DNACPR.

Zander (2007) did note that later authors including Benner (1983) described an experiential way of knowing, knowledge as ability. The work of Carper (1978) and Benner (1983) is still relevant, and some authors applied it to the management of the COVID-19 pandemic (Kubsch & Tcyzkowski 2020).

Neither Carper (1978), Benner (1983) nor their contemporaries could have predicted the proliferation of new ways of making decisions in the 1990's and 2000's. What is relevant here are algorithms such as the advanced life support algorithm, decision supports such as the DNACPR and AI supported simulation-based ALS training. When these new ways of knowing meet the seminal concepts the result was described as burdensome by researchers (Griswald-Peirce 2019).

Deciding upon a course of action to take in the event of a cardiac arrest may be challenging, but the priority should always be the patient. Nurse decision-making in such instances may actually be burdened by the need for a form, rather than helped. This is understandable given the prevailing lack of clarity on where and how DNACPR status should be recorded, and by who. Even when there is a recorded status it does not release the nurse from decision making. Nurses must draw on other ways of knowing and deciding if they cannot rely solely on forms, care plans and records.

Benner (1983) wrote about experience as a way of knowing because of ability gained through repeated exposure to practice. It is potentially the case that nurses within the samples did not have enough exposure to DNACPR for their experience to inform their responses. Repeated exposure to DNACPR is only likely in the high acuity settings from which CPR and DNACPR evolved from, operating theatres and ICU. It is possible, albeit speculatively, that repeated simulated exposures are why ALS was found to be related significantly to responses likely to reduce risk of harm. It is not possible to state which specific component of ALS are impactful however. Future studies would benefit from

exploring what specific aspects of ALS training could be important, or if other factors around interests and support to undertake training are in fact driving the association.

8.4 Discussion on the Care of Older People

Several findings pointed to nursing homes being where DNACPR presents a risk of harm to people. The people at risk of harm being the elderly residents. These findings are summarised below in Table 56 and are the rationale for a discussion about the care of older people and end-of-life care.

RQ	Section	Table 56. Findings Related to Nursing Homes and the Care of Older People
1	6.7	Expectations of nurses. On nurse responsibility for CPR and DNACPR it was found the regulatory position was that decisions related to CPR are not for nurses to make.
1	6.8	To resuscitate or not? Under policy and procedures, a confused understanding was found pertaining to the role of policy. Nurses understood policy as a guide, but the regulator understood policy must be followed by nurses.
2	6.10	Patient autonomy and safety. Under patient or resident prognosis the patients were described by nurses as elderly.
1 & 2	6.10	Patient autonomy and safety. Frailty and comorbidity were found to impact the residents and this was understood by nurses in terms of quality or life, which was in turn considered in decisions about CPR.
2	7.1	82% (n = 299) of nurses from nursing homes reported lone working.
2	7.1	Only 13% of nurses from nursing homes had ALS training.
1 & 2	7.3	Nurses with ALS were least likely to believe only doctors can sign DNACPR forms.
1 & 2	7.9.1	Nurses from nursing homes were more likely to believe DNACPR prevents A&E or ICU care.

The importance of nursing homes in end-of-life care is increasing as less people die in their own homes. Statistics from the United Kingdom and further afield illustrate the trend. In 2005 Ahmad and O Mahony reviewed twenty years of death certificates in Wales and found

that deaths occurring in nursing homes as a percentage of all deaths in Wales had increased from 5.7% in 1981 to 16.2% in 2001. In 2013 Broad *et. al*. studied the locations of deaths in 45 populations (Broad *et. al.* 2013). Of the 21 populations reporting deaths of older people as a subset, a median of 18% died in residential care.

Public Health England in 2017 identified the trend too with 22% of deaths in England in 2014 occurring in nursing homes (PHE 2017, p. 1). Deaths in nursing homes have received particular attention in the context of COVID-19. In a review of deaths in Scottish nursing homes (Bell *et. al.* 2020, p. 2) excess mortality was reported to be highest in nursing homes.

In England the proportion of deaths occurring in nursing homes also increased (CQC 2020, p. 37). In the Republic of Ireland 56% of deaths recorded from January to July 2020 occurred in nursing homes (Department of Health (Ireland) 2020, p. 9). The impact of COVID-19 in nursing homes was seen in all European jurisdictions and prompted renewed questioning of the sectors fitness for purpose.

In 2020 there were 1,084 nursing homes in Scotland (Bell *at. al.* 2020) and 21,481 in England and Wales (CQC 2020). The Independent sector has grown to take the lead in the provision of these homes. The British Geriatric Society (BGS) found privatisation meant the NHS withdrew its expertise from nursing homes (BGS 2011, p. 3). In their '*Quest for Quality*' report the BGS described this as "*a betrayal of older people an infringement of their human rights and is unacceptable in a civilised society*". An equitable solution could involve nursing homes having access to a named hospital's care of the elderly team. Hospitals operate twenty-four hours and a link to them would ensure specialist advice is available remotely when required. The Integrated Care Programme for Older People (ICPOP) in Ireland is one such approach (HSE 2023). The HSE piloted a new integrated national model of older person's care post COVID. The model included integrated (health and social care) governance and the appointment of joint acute-community geriatricians and advanced nurse practitioners. Crucially the clinical approach was population based, and so was agnostic to the location or place of residence of the older person. The pilot found that older people experienced less fragmented care and there was a greater equity in access to expertise. In addition Community Support Teams have been established in each region to specifically support private nursing homes operating outside the state funded system. These teams include medical, nursing, social work and other staff from the public system who now

work directly with older people in privately operated nursing homes. This mobilisation of expertise into the community, while pending full evaluation has the potential to improve experience and outcomes through shared interdisciplinary care planning – including decisions related to end of life care and CPR. As well as models of integrated older person's care, outreach form hospital emergency departments to nursing homes has been successful. This has particular potential to help ensure, when appropriate, that people die in the place of their choosing while still receiving responsive care.

Udesen *et. al.* (2023) reported that 6% of all nursing home residents in Denmark are admitted to hospital trough emergency departments each month. In their study the Danish team dispatched emergency care staff rather than ambulances to nursing home calls and found only 1-in-8 residents required hospital transfer (out of n = 638). The researchers concluded that the residents in fact required palliative care, and that by collaborating the acute care nurses and nursing home staff could effectively manage this within the nursing home. There are various studies emerging post COVID which share the elements of the HSE's ICPOP pilot (HSE 2023) and the Danish study by Udesen *et. al.* (2023). A systematic review of the work in this area may yield valuable information for future service design.

Regulators in the UK recognise that staffing levels and skill-mix have a bearing on safety and quality. The NHS Constitution states that people *"'have the right to be treated with a professional standard of care, by appropriately qualified and experienced staff, in a properly approved or registered organisation that meets levels of safety and quality'* (Department of Health and Social Care 2021, p. 1). Competence was related to the expectations of nurses as illustrated in Section 6.7 earlier. Competence in the context of this study of nurse understanding of DNACPR means competence in decisions related to CPR. If these decisions are outside the scope of nursing practice, who would make the required decisions?

The legal and policy positions in the UK are in fact that nurses can make decisions related to CPR. An example is the NHS Scotland DNACPR Integrated Adult Policy (2010, p. 13) which states *"The overall responsibility for making an advance decision about CPR rests with the senior clinician (doctor or nurse) who has clinical responsibility for the patient during that episode of care."* There is a recognition here that a nurse can be the person who has "clinical responsibility for the patient during an episode of care". In fact this is likely often the case in nursing homes, as care is nurse-led day-to-day, doctors not being routinely

rostered on shifts in nursing homes. This is not to say that all nurses should be considered as a senior clinician, there are obviously junior nurses, but even they could by default be the most senior clinician present and may not have time (*e.g. a* dying patient) or the availability (*e.g.* during night shifts) of more senior colleagues to consult with. This makes the potential for shared decision making with more experienced nurses and doctors from specialist care of the elderly teams even more attractive.

The national guidance on decisions related to CPR is explicit that life-or-death decisions cannot be reduced to a matter of policy (RCN, RCUK, BMA 2016, p. 5). A generalisation such as this carries a particular risk of harm when policy is flawed. The adequacy of policies was not an area of inquiry but incidentally it can be determined that some policies are problematic. A patient diagnosed with a cardiac arrest can be resuscitated, but not a patient who is dead. Despite this, policy was apparently directive that dead residents were to be treated with CPR. The role of policy in practice needs to be considered carefully. Policy cannot take the place of competent clinical decision making, often made in a very immediate timeframe.

While it is important to prevent harm by allowing people to die in a dignified manner if there is no prospect of survival, it is equally if not more important to treat the treatable. While cardiac arrest may not be treatable for a specific individual, it might be prevented by successfully treating the prodrome. On the basis that the overinterpretation of DNACPR continues, it is reasonable to conclude that DNACPR continues to pose a risk of harm to nursing home residents.

Scotland's Care Inspectorate published an updated quality framework for residential homes in 2020, aligned to the 2018 Health and Social Care Standards. The quality framework stressed that residents should be treated as experts in their own needs and *"benefit from regular healthcare assessments, access to community healthcare and treatment from competent trained practitioners, including prevention and early detection interventions"* (Care Inspectorate 2020, p. 19). The focus is on living as it should be, and a comprehensive geriatric assessment and evidence-based care plan should be the foundation for this, augmented with advanced decisions about CPR as required.

8.5 Discussion on DNACPR

DNACPR was the focus of the two research questions which were:

1. What do nurses understand about DNACPR, and decisions related to CPR?

2. How do those understandings impact the care nurses provide and risk of harm to patients?

In addition to the findings discussed so far, and how they answered the research questions in ways connected to ethical issues, the ways nurses know and the care of the elderly – below are findings discussed with respect to the central concept, DNACPR.

RQ	Section	Table 57. Findings on DNACPR
1	6.7	Expectations of nurses. Under responsibility for CPR and DNACPR nurses understood that they could make DNACPR decisions themselves.
1	6.8	To resuscitate or not? Under policy and procedures there was confusion about where DNACPR status should be recorded and where the record should be held.
1 & 2	7.3	63.9% (n =225) responded incorrectly that DNACPR is legally binding.
1	7.3	55.4% (n =195) responded incorrectly that only doctors can sign DNACPR forms.
1	7.3	85.5% (n = 300) responded that DNACPR provides for dignity in death.
1 & 2	7.3	Nurses were found to overinterpret CPR as applying to other treatments e.g., chemotherapy which 27.3% responded would never be appropriate for a patient with a DNACPR in place.
1 & 2	7.5	The DNACPR form itself rather than direct patient care was found to be prioritised by between 17.6% to 32.7% of respondents considering the scenarios in four vignettes.
1 & 2	7.7.4	Nurses with either no post graduate specialist qualification, or a specialist qualification in older person's nursing were less likely than nurses with other specialist post graduate qualifications to understand DNACPR.
1 & 2	7.7.6	Nurses with no or basic life support training were seven times more likely to believe DNACPR is legally binding.

1 & 2	7.11.2	The higher the nurse's level of life support training the less likely the nurse was to respond that DNACPR prevents treatment in ICU and A&E, nurses with ALS being 11 times more likely to respond correctly.

It is proposed that variance in nurse understanding results in varying degrees of risk. For example, if DNACPR is understood as legally binding it is less likely to be survived if a cardiac arrest occurs in circumstances other than those envisaged. This has been reported by charities investigating discriminatory DNACPR in hospitals (MENCAP 2012) but has not yet been studied in nursing homes. There is a more obvious risk of harm related to applying the orders not to resuscitate beyond CPR. This finding carries a particularly high risk of harm as it potentially prevents access to lifesaving treatment without any grounds for those treatments being withheld.

There are likely to be combinations of understandings that pose a very high risk of harm. An example would be a combination of the understanding that a) DNACPR is legally binding b) is not a decision nurses can make and c) DNACPR prevents other treatments when a person deteriorates.

The relationship between post graduate education and a good understanding of DNACPR was consistent except for older person's nursing. Nurses with specialist postgraduate qualifications were found to be less likely to misunderstand DNACPR was legally binding, apart from those who were qualified in older person's nursing. Most nurses who had a qualification in older person's nursing were found to respond in a manner more likely to be associated with risk of harm. This may be because the other specialist qualifications were related to controlled environments where nurses are more likely to be exposed to DNACPR being overridden. Examples of this are procedure specific DNACPR in operating theatres and rhythm specific DNACPR in coronary care.

8.6 Summary of Discussion

The first research question was what do nurses understand about DNACPR and related CPR decisions? The discussion has dealt with how nurse understanding remains poor, with nurses still being confused about who can fill in DNACPR forms and what they are for. This was discussed above from a bioethical perspective and in the context of the care of older people. The discussion on DNACPR itself noted that despite being in operation for over four decades in some instances it has failed to fulfil its intended purpose. This is consistent with the findings of the scoping review of the existing literature which found nurse understanding was highly varied. The discussion illustrates how this study established that this continues to be the case. Work is ongoing to examine the risks and benefits of DNACPR in the hospital setting and a similar evaluation of the concept in the nursing home sector is needed. Ultimately the conclusion being what nurses understand about DNACPR is highly varied and this poses a risk of harm.

The second research question was how nurse understanding impacts care and risk of harm? Nurses were found to be motivated to do the right thing, but the discussion highlighted how DNACPR is not always enabling them to achieve this. Nurses seem both willing to withhold CPR in the absence of DNACPR, and perform CPR in its presence. Both of these being potentially harmful. Nurse misunderstanding of DNACPR was discussed as posing a risk of harm in other ways also. This could be because the nurse understands they must carry out futile CPR, believing they cannot decide to withhold it as a nurse. Or conversely it could be because a nurse understands a DNACPR applies to more than CPR. The example in the discussion being a belief that nursing home residents with DNACPR status should not be transferred to hospital for treatment if they deteriorate. The discussion noted that the results of the logistic regressions point to avenues for harm prevention through increased post graduate education and life support training.

Chapter 9 Implications for Policy, Practice and Research

9.1 Implications for Policy

Policy related to DNACPR exists indirectly at a macro level as government policy on health and social care. It also exists at a micro level, the policy that was found to be relied upon so heavily by nurses. At the macro level policy is responsible for shaping the landscape of health and social care delivery. Policy in each of the four UK countries has seen the privatisation of nursing homes, albeit with varying levels of subsidy or co-pay. This has meant a proliferation of local polices in individual nursing homes in comparison to hospital policies which benefit from the frameworks of the four National Health Services.

The lack of integration between the NHS and nursing homes may have contributed to the development of a hierarchy within which nursing homes occupy a lower tier. It was documented before this study that nursing homes were understaffed (BGS 2011 p. 12), but what the findings illustrate is how the staff are professionally exposed and disadvantaged as a result. Without a team to work within some of the lower paid nurses in the UK are left to make life and death decisions in isolation. This being without the benefit of a bioethical framework for these decisions aligned to the NMC Code.

In countries like the Republic of Ireland government policy retained many nursing homes within the Health Service. A follow up comparison study might show the impact of this on DNACPR in those nursing homes. While there is still a lack of day-to-day operational integration between nursing homes and hospitals in Ireland, there are advantages to health service governance.

The single governance model saw the rapid redeployment of hospital and primary care staff to nursing homes during the COVID-19 Pandemic. One of the areas these staff worked in was end-of-life care and the operation of a revised national guidance on decisions related to CPR (HSE 2020).

Interdisciplinary working in nursing homes during the pandemic resulted in residents being cared for until and after their death using DNACPR as appropriate on a case-by-case basis. Importantly, residents who required treatment including respiratory support received this.

This success during a crisis warrants closer examination considering the findings of this study. Policy makers should consider the potential for a policy solution that drives real operational integration between component parts of the NHS, between the NHS and local government and between public and private sector providers.

At a micro level the findings about policy are problematic. Policy when confused with procedure and process is potentially dangerous. An example is the expectation that a nursing home policy on resuscitation can replace the professional decision making required when a resident has a cardiac arrest. Policy on a clinical intervention should not direct its universal application, for example all residents are to be resuscitated. Vice versa, policy should not direct that all residents are to have DNACPR status. It is contrary to a rights-based approach to care for a policy to determine who is the subject of a DNACPR. Following the bioethical discussion earlier it would breach the principles of autonomy and justice.

What is in the individual's interest is a comprehensive individual assessment, which policy can certainly guide. The safest option might be a national clinical guideline for DNACPR (e.g., NICE or SIGN) rather than policy which was found to be understood as prescriptive.

9.2 Implications for Practice

Implications for practice include a need to address the risk of harm associated with DNACPR, consider the education of the workforce, and clarity on the role of the nurse. The scoping review in Chapter 3 noted that CPR is a highly researched area. Although less researched DNACPR has been the subject of studies since its inception. Despite the volume of work, it is evident that a risk of harm remains. This needs to be addressed, taking account of previous attempts such as the national guidance on decisions related to CPR.

It is possible that the guidance never reached key audiences. It could be because the primary dissemination channel for the guidance was the NHS that it did not reach nursing homes. The guidance was reissued by the Resuscitation Council in 2020 in response to COVID-19. This could be an opportunity to maximise its impact by correcting persistent misunderstandings, for example by producing an accompanying implementation tool for nursing homes. Scope of practice for clinical leadership needs to be clarified within nursing

and across the interdisciplinary community. It may be the case that nurses and the nursing regulator are still not comfortable with a degree of professional freedom common in other professions. There is a need to facilitate nurses to take responsibility for making decisions about CPR by investing in the intellectual capital of the nursing home workforce. Currently nurses are working within a scope of practice that their competence doesn't always fill. If a nurse is working alone, they might be considered the lead clinician with respect to episodes of care they deliver regardless of anyone's definition of 'lead' or 'senior' clinician. That is not to suggest all nurses are competent to act as lead or senior clinicians – but to acknowledge that if they are the only clinician then they are the most senior.

To protect patients from exposure to risk of harm it is critical to ensure nurses are competent to make the professional judgments required where they work. With respect to the care of older people this includes decisions about CPR. Given the findings related to advanced life support and given that lay people now practice intermediate life support (Hallstrom 2004), there is a strong case for all nurses to be advanced life support trained. If that is not possible, given resource limitations (funding, equipment or training staff) there is a net gain in increased life support training at ILS level. It should be noted one of the most important lessons in ALS is how to assess if CPR will be beneficial or not for a person – enabling staff to decide when not to do CPR. So in the context that a nurse having ALS training does not suggest they should always perform advanced life support, consideration should be given to equipping future nurses with ALS in their final undergraduate year, or first graduate year. This would bring nursing into line with medicine and paramedicine. Doctors and paramedics do not always perform advanced interventions merely because they are competent to, on the contrary they have more confidence to withhold such treatments when appropriate.

There may be a net gain in patient safety by limiting the use of DNACPR forms to acute hospitals and using more holistic care plans in nursing homes. Those individual care plans could include decisions related to CPR but the overriding focus being on what treatments the person will receive, as opposed to any they will not. Such approaches include the ReSPECT process under development at the Resuscitation Council UK (Hawkes *et. al.* 2020). The aim should be to phase DNACPR out of use in nursing homes.

9.3 Implications for Research

The subject could benefit from further research in several ways. The data could also be utilised again by other researchers asking different questions of it. The data is available online for that purpose at www.DNACPR-study.com.

An area that warrants research are the regulatory hearings held by the NMC. They provided a well-transcribed account of real-life incidents related to DNACPR. Asking other questions of this set of transcripts could provide new knowledge to inform future practice. The publicly available transcripts are also recommended to other researchers studying any aspect of nursing or midwifery practice. The lived experiences of nurses and midwives described in their own words could be useful for many studies.

Research into how ILS and ALS impact CPR decision making competency could further inform practice development. Because it was not determined which component of ALS was responsible for the effect noted on nurse understanding of DNACPR there are further avenues to research. In addition, determining the impact of a bioethics module or CPR decision support framework on ability would be valuable future studies.

9.4 Limitations and Strengths of the Study

The limitations included the populations and sample sizes, and what they mean for how generalisable the findings are. The sample sizes were reasonable for the populations, but they cannot be seen as representative of all nurses. Due to the targeted focus on nurses working with older people relevance to other areas cannot be inferred. The study explored real-world DNACPR decisions in retrospect (phase one) informing a questionnaire built during the study (phase two) and finally hypothetical DNACPR decisions (phase three), there was no field work. The hearings took place on average two years after the events with the benefit of hindsight, and the questionnaire without the pressures of decision making in practice. It should be borne in mind that while the transcripts of regulatory hearings related to real events, the questionnaire did not. In addition the structure of the questionnaire limited the extent of analysis possible, for example by using questions when the participants

were asked to choose only one of the answer options rather than to rate all the answer options on a scale of preference or priority.

There was no control in the study as in an exposure-outcome design, and many variables were nominal or ordinal. Care was taken not to mistreat ordinal variables as continuous variables but that in turn limited the analysis methodology available. This was not problematic with regards to how well the findings answered the research questions. It does mean that care should be taken not to assume a particular cause-and-effect where a relationship was found between two variables using a Chi Square.

The impact of limitations was offset by some strengths. This was the first study including data on real-world DNACPR use by nurses in the UK. It was also the first study to use logistic regression to determine the impact of nurse related variables on risk of harm associated with DNACPR. In the regressions the odds of 'low-risk' versus 'high-risk' responses could be explained as predicted independently by two variables. Firstly, the ordinal variable of life support training level and secondly the dichotomous variable of having a specialist postgraduate qualification or not. While the R Squares in the regressions may appear low it is noted in the literature that studies explaining human behaviour rarely have an R Square above 50%. This is due to the increased difficulty explaining variation in behaviour versus explaining variation in control trial outcomes (Frost 2019). In this context the R Square values mean the findings are reliable and of use in practice. The finding related to the impact of having ALS training is the first of its kind and opens new avenues for practice development and research.

9.5 Conclusions and Recommendations

In answer to research question one it was concluded that nurse understanding of DNACPR is poor and this may be especially so in nursing homes. In answer to research question two, notwithstanding the limitations, it was concluded that a continuing risk of harm exists associated with DNACPR.

It was found that older people were primarily impacted by DNACPR, building on the existing evidence in the literature. A fundamental rethink is required about how older people in our society, and those who care for them are valued.

Recommendations for actions pending further research include the following. The current national guidance on decisions related to CPR should be converted to a National Clinical Guideline. Policies on DNACPR should be reviewed to ensure that they do not constitute directions for either blanket resuscitation, or blanket DNACPR.

Increasing levels of life support training were found to be associated with a better understanding of DNACPR, but which component of ALS was responsible for this effect remains unclear. There is a case for providing advanced life support training to all nurses, and it becoming part of the undergraduate curriculum. This being with a view to equipping nurses with the ability to understand the reversible causes of cardiac arrest and so determine the likelihood of successful resuscitation – not as a mandate to always administer advanced interventions. As a minimum, nurses should be ILS trained. All levels of life support training would benefit from the addition of a short session to explain the bioethics of DNACPR.

The most effective of risk controls within the hierarchy of controls are engineering, that is engineering risk out of systems. Consideration should be given to phasing DNACPR out of use in nursing homes. Instead, decisions about CPR should be person-centred following a comprehensive individual assessment.

References

Acierno, L.J. and Worrell, L.T. (2007) Peter Safar: Father of modern cardiopulmonary resuscitation. *Clinical Cardiology: An International Indexed and Peer-Reviewed Journal for Advances in the Treatment of Cardiovascular Disease,* 30 (1), pp. 52-54.

Ahmad, S. and O Mahony, M. (2005) Where older people die: a retrospective population-based study. *Qjm,* 98 (12), pp. 865-870.

Al Khalaileh, M. (2014) Jordanian critical care nurses' attitudes toward and experiences of do not resuscitate orders. *International Journal of Palliative Nursing,* 20 (8), pp. 403-408.

Allmark, P. and Machaczek, K. (2018) Realism and Pragmatism in a mixed methods study. *Journal of Advanced Nursing,* 74 (6), pp. 1301-1309.

And, H.B. and Goerig, M. (1995) Early proponents of cardiac massage. *Anaesthesia,* 50 (11), pp. 969-971.

Arksey, H. and O'Malley, L. (2005) Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology,* 8 (1), pp. 19-32.

Australian Resuscitation Council & New Zealand Resuscitation Council (2015) *Resuscitation Guidelines 10.5 Legal and Ethical Issues Related to Resuscitation.* ARC Sydney, pp. 1-7.

Baskett, P. (1993) The study of the effectiveness of chest compressions using the CPR-plus. *Resuscitation,* 36 (3), pp. 169-173.

Beauchamp, T. and Childress, J. (2019) Principles of Biomedical Ethics: Marking its Fortieth Anniversary. *American Journal of Bioethics* 19 (11, pp. 9-12

Benner, P. (1983) Uncovering the knowledge embedded in clinical practice. *Image (03632792),* 15 (2), pp. 36-41.

Bell, D., Comas-Herrera, A., Henderson, D., Jones, S., Lemmon, E., Moro, M., Murphy, S., O'Reilly, D. and Patrignani, P. (2020) COVID-19 mortality and long-term care: a UK comparison, p. 2.

Bewick, V., Cheek, L. and Ball, J. (2005) Statistics review 14: Logistic regression. *Critical Care,* 9 (1), p. 112.

BGS (2011) *A Quest for Quality. British Geriatrics Society Joint Working Party Inquiry into the Quality of Healthcare Support for Older People in Care Homes: A Call for Leadership, Partnership and Quality Improvement.* London: British Geriatric Society, pp. 3 & 12.

BMA (2001) Decisions Relating to Cardiopulmonary Resuscitation: A Joint Statement from the British Medical Association, the Resuscitation Council (UK) and the Royal College of Nursing. *Journal of Medical Ethics,* 27 (5), p. 310.

Bloomer, A. (2020) Covid-19: Older people pressured into signing DNA-CPR forms. *General Medicine (GM),* (April) https://www.gmjournal.co.uk/covid-19-older-and-vulnerable-people-pressurised-into-signing-dna-cpr-forms [Accessed: 12th February 2021], p. 1.

Bosslet, G.T., Pope, T.M., Rubenfeld, G.D., Lo, B., Truog, R.D., Rushton, C.H., Curtis, J.R., Ford, D.W., Osborne, M. and Misak, C. (2015) An official ATS/AACN/ACCP/ESICM/SCCM policy statement: responding to requests for potentially inappropriate treatments in intensive care units. *American Journal of Respiratory and Critical Care Medicine,* 191 (11), pp. 1318-1330.

Bowen, G.A. (2009) Document analysis as a qualitative research method. *Qualitative Research Journal,* 9 (2), pp. 27-40.

Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology. 3 (2), pp. 77-101.

Braun, V. and Clarke, V. (2021) *Thematic Analysis: A Practical Guide / Virginia Braun, Victoria Clarke.* London: SAGE Publications Ltd, pp. 14, 35, 84 & 112.

Broad, J.B., Gott, M., Kim, H., Boyd, M., Chen, H. and Connolly, M.J. (2013) Where do people die? An international comparison of the percentage of deaths occurring in hospital and residential aged care settings in 45 populations, using published and available statistics. *International Journal of Public Health,* 58 (2), pp. 257-267.

Brysiewicz, P. and Nankundwa, E. (2017) Lived experiences of Rwandan ICU nurses caring for patients with a do-not-resuscitate order. *Southern African Journal of Critical Care,* 33 (1), pp. 19-22.

Burns, J.P. and Truog, R.D. (2016) The DNR Order after 40 Years. *The New England Journal of Medicine,* 375 (6), pp. 504-506.

Byrne, D. (2022) A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & Quantity,* 56 (3), pp. 1391-1412.

Care Inspectorate (2020) A quality Framework for Care Homes for Older People. https://www.careinspectorate.com/index.php/publications-statistics/147-professionals-registration/quality-frameworks?start=10 [Accessed: 12th January 2021], p. 19.

Carper, B.A. (1978) Practice oriented theory. Fundamental patterns of knowing in nursing. part 1 (2). *Advances in Nursing Science,* 1, pp. 13-23.

Carr, D. and Luth, E.A. (2017) Advance care planning: contemporary issues and future directions. *Innovation in Aging,* 1 (1), pp. 1-10.

CEBM (2020) *Centre for Evidence Based Medicine Critical Appraisal Tools,* Abstract only. Available: https://www.cebm.ox.ac.uk/resources/ebm-tools/critical-appraisal-tools [Accessed: 7th September 2020].

Clements, M., Fuld, J. and Fritz, Z. (2014) Documentation of resuscitation decision-making: a survey of practice in the United Kingdom. *Resuscitation,* 85 (5), pp. 606-611.

Cobb, A.K. and Forbes, S. (2002) Qualitative research: What does it have to offer to the gerontologist? *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences,* 57 (4), pp. 197-202.

Cohn, S., Fritz, Z.B., Frankau, J.M., Laroche, C.M. and Fuld, J.P. (2013) Do Not Attempt Cardiopulmonary Resuscitation orders in acute medical settings: a qualitative study. *QJM: Monthly Journal of the Association of Physicians,* 106 (2), pp. 165-177.

Conwell, Y. and Caine, E.D. (1991) *Rational Suicide and the Right to Die: Reality and Myth,* N Engl J Med (325), pp. 1100-1103.

Critical Appraisal Skills Network (2013) *CASP Checklists.* CASP. Available: http://www.casp-uk.net/casp-tools-checklists . [Accessed: 12th November 2021].

Cronin, P., Ryan, F. and Coughlan, M. (2008) Undertaking a literature review: a step-by-step approach. *British Journal of Nursing,* 17 (1), pp. 38-43.

Curtis, J.R., Kross, E.K. and Stapleton, R.D., (2020). The importance of addressing advance care planning and decisions about do-not-resuscitate orders during novel coronavirus 2019 (COVID-19). *Jama*, *323*(18), pp.1771-1772.

Care Inspectorate Scotland (2020) *A Quality Framework for Care Homes for Adults.* Glasgow: Care Inspectorate Scotland.
Available: https://www.careinspectorate.com/images/documents/5856/Quality%20framework%20for%20care%20homes%20for%20adults%202020.pdf [Accessed: 8th November 2021], p. 19.

Care Quality Commission (2020) *The State of Health Care and Adult Social Care in England.* London: CQC, p. 37.

Dale, S. (2023) A Critique of Principlism: Virtue and the Adjudication Problem in Bioethics. *Voices in Bioethics,* 9 (11), pp. 1-5.

De Gendt, C., Bilsen, J., Vander Stichele, R., Van Den Noortgate, N., Lambert, M. and Deliens, L. (2007) Nurses' involvement in 'do not resuscitate' decisions on acute elder care wards. *Journal of Advanced Nursing,* 57 (4), pp. 404-409.

Department of Health and Social Care (2021) *The NHS Constitution.* London: Department of Health and Social Care. Available: https://www.gov.uk/government/publications/the-nhs-constitution-for-england/the-nhs-constitution-for-england [Accessed: 17th December 2021], p. 1.

Department of Health (Ireland) (2020) *COVID19 Nursing Homes Expert Panel Report.* Dublin: Government of Ireland, p, 9.

Donchin, A. (2001) Understanding autonomy relationally: toward a reconfiguration of bioethical principles. *The Journal of Medicine and Philosophy,* 26 (4), pp. 365-386.

Druwé, P., Monsieurs, K.G., Piers, R., Gagg, J., Nakahara, S., Alpert, E.A., van Schuppen, H., Élő, G., Truhlář, A. and Huybrechts, S.A. (2018) Perception of inappropriate cardiopulmonary resuscitation by clinicians working in emergency departments and ambulance services: the REAPPROPRIATE international, multi-centre, cross sectional survey. *Resuscitation,* 132, pp. 112-119.

EHPP (2012) *Effective Public Healthcare Practice Project Quality Assessment Tool for Quantitative Studies,* Abstract only. Available: https://www.ephpp.ca/quality-assessment-tool-for-quantitative-studies/ [Accessed: 7th September 2020], pp. 1-4.

Fritz, Z., Fuld, J., Haydock, S., Palmer, C., Fritz, Z., Fuld, J., Haydock, S. and Palmer, C. (2010) Interpretation and intent: a study of the (mis)understanding of DNAR orders in a teaching hospital. *Resuscitation,* 81 (9), pp. 1138-1141.

Fritz, Z.B.M., Heywood, R.M., Moffat, S.C., Bradshaw, L.E. and Fuld, J.P. (2014) Characteristics and outcome of patients with DNACPR orders in an acute hospital; an observational study. *Resuscitation,* 85 (1), pp. 104-108.

Fritz, Z. and Fuld, J.P. (2015) Development of the Universal Form of Treatment Options (UFTO) as an alternative to Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) orders: a cross-disciplinary approach. *Journal of Evaluation in Clinical Practice,* 21 (1), pp. 109-117.

Frost, J. (2019) *Regression Analysis, An intuitive guide for using and interpreting linear models.* New York: Jim Publishing, p. 131.

Gobo, G. (2023) Mixed methods and their pragmatic approach: Is there a risk of being entangled in a positivist epistemology and methodology? Limits, pitfalls and consequences of a bricolage methodology. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research,* 24 (1), pp. 1-26.

Gallo, J.J., Straton, J.B., Klag, M.J., Meoni, L.A., Sulmasy, D.P., Wang, N. and Ford, D.E. (2003) Life-sustaining treatments: what do physicians want, and do they express their wishes to others? *Journal of the American Geriatrics Society,* 51 (7), pp. 961-969.

Gaus, G.F. (2001) What is deontology? Part one: orthodox views. *Journal of Value Inquiry,* 35 (1), p. 27.

Giles, H. and Moule, P. (2004) 'Do not attempt resuscitation' decision-making: a study exploring the attitudes and experiences of nurses. *Nursing in Critical Care,* 9 (3), pp. 115-122.

GMC (2021) *Fitness to Practice Statistics.* London: GMC. Available: https://www.gmc-uk.org/-/media/documents/fitness-to-practise-statistics-report-2020_pdf-87198195.pdf [Accessed: 8th January 2021], p. 2.

GMC (2020) Ethical Guidelines for Doctors. https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors [Accessed: 12th January 2021].

Godkin, M.D. and Toth, E.L. (1994) Cardiopulmonary resuscitation decision making in long-term care: a role for the nurse? *Journal of Advanced Nursing,* 19 (1), pp. 97-104.

Goldstone, J.A. (1997) Methodological issues in comparative macrosociology. *Comparative Social Research,* 16, p. 107.

Goniewicz, M., Rzońca, P., Klukow, J., Pawlikowski, J., Sak, J. and Goniewicz, K. (2013) DNR declaration—emergency medical system nurses' opinions. *Central European Journal of Medicine,* 8 (1), pp. 69-74

Gordon, M. (2015) Rituals in death and dying: modern medical technologies enter the fray. *Rambam Maimonides Medical Journal,* 6 (1), p. e0007.

Griswald-Peirce, A., Elie, S., George, A., Gold, M., O'Hara, K. and Rose-Facey, W. (2020) Knowledge development, technology, and questions of nursing ethics. *Nursing Ethics,* 27 (1), pp. 77-87.

Guba, E.G. (1981) Criteria for assessing the trustworthiness of naturalistic inquiries. *Ectj,* 29 (2), p. 75.

Gül, Ş., Bağcivan, G. and Aksu, M. (2020) Nurses' opinions on do-not-resuscitate orders. *OMEGA-Journal of Death and Dying,* pp. 0030222820969317.

Haahr, A., Norlyk, A., Martinsen, B. and Dreyer, P. (2020) Nurses experiences of ethical dilemmas: A review. *Nursing Ethics,* 27 (1), pp. 258-272.

Hallstrom, A.P. (2004) Public-access defibrillation and survival after out-of-hospital cardiac arrest. *New England Journal of Medicine,* 351 (7), pp. 637-646

Handley, A.J., Koster, R., Monsieurs, K., Perkins, G.D., Davies, S. and Bossaert, L. (2005) European Resuscitation Council Guidelines for Resuscitation 2005: Section 2. Adult basic life support and use of automated external defibrillators. *Resuscitation,* 67, pp. S7-S23.

Havers (2014) *The Queen on the Application of David Tracey -v- Cambridge University Hospitals NHS Foundation Trust and Others* (2014) (United Kingdom) (P. Havers QC) Available: https://www.judiciary.gov.uk/judgments/r-v-tracey-judgment/ [Accessed: 20th October 2015].

Hawkes CA, Fritz Z, Deas G, Ahmedzai SH, Richardson A, Pitcher D, et al. Development of the Recommended Summary Plan for Emergency Care and Treatment (ReSPECT). Resuscitation. 148, pp. 98-107

Healthcare Improvement Scotland (2015) *Care of Older People in Hospital Standards.* Glasgow: NHS Scotland, p. 8.

Health Service Executive (2020) *HSE Guidance Regarding Cardiopulmonary Resuscitation and DNAR Decision-Making during the COVID-19 Pandemic.* Dublin: HSE, p. 12.

Health Service Executive (2023) *HSE Making A Start in Integrated Care for Older Persons.* Available: https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/a-practical-guide-to-the-local-implementation-of-integrated-care-programmes-for-older-persons.pdf [Accessed: 11 March 2023]

Horsburgh, D. (2007) The NMC Code of conduct and. *Foundations of Nursing Practice E-Book: Fundamentals of Holistic Care,* pp. 163 – 168.

Hughes, R. and Huby, M. (2002) The application of vignettes in social and nursing research. Journal of Advanced Nursing, 37 (4), pp. 382-386.

Hughes, R. and Huby, M. (2004) The construction and interpretation of vignettes in social research. Social Work and Social Sciences Review, 11 (1), pp. 36-51

Ingham-Broomfield, R. (2016) A nurses' guide to mixed-methods research. *Australian Journal of Advanced Nursing,* 33 (4), pp. 46-52.

Innes, G. and Wanger, K. (1999) Dignified death or legislated resuscitation? *CMAJ: Canadian Medical Association Journal = Journal De l'Association Medicale Canadienne,* 161 (10), pp. 1264-1265.

Jack, B.A., Gambles, M., Murphy, D. and Ellershaw, J.E. (2003) Nurses' perceptions of the Liverpool Care Pathway for the dying patient in the acute hospital setting. *International Journal of Palliative Nursing,* 9 (9), pp. 375-381.

Jacobs, I., Nadkarni, V. Bahr, J. (2004) ILCOR Task Force on Cardiac Arrest and Cardiopulmonary Resuscitation. Cardiac arrest and cardiopulmonary resuscitation outcome reports: update and simplification of the Utstein templates for resuscitation registries: a s. *Circulation,* 110 (21), pp. 3385-3397.

Jacobsen, M.H. (2020) *The Age of Spectacular Death.* Routledge. New York, pp. 1 -3.

Kelly, P.A., Baker, K.A., Hodges, K.M., Vuong, E.Y., Lee, J.C. and Lockwood, S.W., 2021. Nurses' Perspectives on Caring for Patients with Do-Not-Resuscitate Orders. *AJN The American Journal of Nursing*, *121*(1), pp.26-36.

Knights, D., Wood, D. and Barclay, S. (2013) The Liverpool Care Pathway for the dying: what went wrong? *The British Journal of General Practice: The Journal of the Royal College of General Practitioners,* 63 (615), pp. 509-510.

Kon, A.A., Shepard, E.K., Sederstrom, N.O., Swoboda, S.M., Marshall, M.F., Birriel, B. and Rincon, F. (2016) Defining Futile and Potentially Inappropriate Interventions: A Policy Statement from the Society of Critical Care Medicine Ethics Committee. *Critical Care Medicine,* 44 (9), pp. 1769-1774.

Konishi, E. (1998) Nurses' attitudes towards developing a do not resuscitate policy in Japan. *Nursing Ethics,* 5 (3), pp. 218-227.

Kubsch, S.M. and Tyczkowski, B. (2020) Benner's Novice to Expert Model: An Application to COVID-19 Nurses on the Front Line. *Beginnings,* 40 (5), pp. 12-25

Kunneman, H. (2010) Ethical complexity. *Complexity, difference, and identity.* Springer, pp. 131-164.

Liu, C, Lai. C, Hii. C and Chan, H. (2011) Outcomes and Cost Analysis of Patients with Successful In-Hospital Cardiopulmonary Resuscitation. *International Journal of Gerontology,* 5 (4), pp. 196-199.

Lwanga, S.K and Lemeshow S (1991) *Sample size determination in health studies : a practical manual.* Geneva: WHO. Available: http://apps.who.int/iris/handle/10665/40062 [Accessed: 22nd March 2017].

Manias, E. (1998) Australian nurses' experiences and attitudes in the 'do not resuscitate' decision. *Research in Nursing & Health,* 21 (5), pp. 429-441.

Mays N, Roberts E, Popay J. (2001) Synthesizing research evidence. In: Fulop N, Allen P, Clarke A, Black N, editors. *Studying the Organisation and Delivery of Health Services: Research methods.* London: Routledge; pp. 188–219

McCrossan, L. and Siegmeth, R. (2017) Demands and requests for 'inappropriate' or 'inadvisable' treatments at the end of life: what do you do at 2 o'clock in the morning? *BJA: British Journal of Anaesthesia,* 119 (suppl_1), pp. 90-98.

MENCAP (2012) *Death by Indifference: 74 Deaths and Counting.* London: MENCAP, p. 15.

Mogadasian, S., Abdollahzadeh, F., Rahmani, A., Ferguson, C., Pakanzad, F., Pakpour, V. and Heidarzadeh, H. (2014) The Attitude of Iranian Nurses About Do Not Resuscitate Orders. *Indian Journal of Palliative Care,* 20 (1), pp. 21-25.

Monsieurs, K.G., Handley, A.J. and Bossaert, L.L. (2001) European Resuscitation Council Guidelines 2000 for Automated External Defibrillation: A statement from the Basic Life Support and Automated External Defibrillation Working Group1 and approved by the Executive Committee of the European Resuscitation Council. *Resuscitation,* 48 (3), pp. 207-209.

Munn, Z., Peters, M.D., Stern, C., Tufanaru, C., McArthur, A. and Aromataris, E. (2018) Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Medical Research Methodology,* 18 (1), pp. 1-7.

National Cardiac Arrest Audit (2015) *Key Statistics 2014/15.* London: NCAA. Available: https://www.icnarc.org/Our-Audit/Audits/Ncaa/Reports/Access-Our-Data/2015/10/15/Key-Ncaa-Statistics-201415 [Accessed: 09th November 2015], p. 12.

National Confidential Enquiry into Patient Outcome and Death (2012) *Time to Intervene. A Review of Patients Who Underwent Cardiopulmonary Resuscitation as a Result of an In-hospital Cardiac Arrest.* London: NCEPOD, p. 6.

NHS Digital (2016) *Summary Hospital-level Mortality Indicator.* NHS Digital. Available: http://content.digital.nhs.uk/SHMI. [Accessed: 04th November 2017].

NHS England (2020) *Letter on DNACPR during COVID 19.* [COVID 19 Chief executives of all NHS trusts and foundation trusts] Personal communication. Available: https://www.england.nhs.uk/coronavirus/documents/do-not-attempt-cardiopulmonary-resuscitation-dnacpr-letter-3-april-2020/ [Accessed: 07th April 2020], p. 1.

NICE (2012) *Quality Appraisal Checklists for Qualitative and Quantitative Research.* Available: https://www.nice.org.uk/process/pmg4/chapter/appendix-h-quality-appraisal-checklist-qualitative-studies [Accessed: September 8th 2020].

NMC (2020a) *Annual Report 2019.* London: NMC. Available: https://www.nmc.org.uk/globalassets/sitedocuments/annual_reports_and_accounts/2019-2020-summary-annual-report.pdf [Accessed: 5th January 2021], p. 4.

NMC (2020b) *The Code, Professional Standards of Practice and Behaviour for Nurses and Midwives.* London: NMC, p. 6.

NMC (2020c) *NMC Registration Data Reports.* London: NMC. Available: https://www.nmc.org.uk/globalassets/sitedocuments/data-reports/march-2020/nmc-register-march-2020.pdf [Accessed: 25th Feb 2020], p. 7.

NMC Online (2017) *Fitness to Practice case search.* London: NMC Online. Available: http://www.nmc.org.uk/search/?q=cpr [Accessed: 10 October 2015].

Noble, H. and Smith, J. (2018) Reviewing the literature: choosing a review design. *Evidence-Based Nursing,* 21 (2), pp. 39-41.

Oliver, D. (2020) Detoxifying DNACPR Decisions. *British Medical Journal,* 371, pp. 4069.

Open Paediatrics (2017) *Orders Not to Resuscitate: The Origin of the DNR Order.* Boston: Open Paediatrics. Available: https://www.openpediatrics.org/assets/video/orders-not-resuscitate-origin-dnr-order [Accessed: 10th June 2018].

Park, Y., Kim, J. and Kim, K. (2011) Changes in how ICU nurses perceive the DNR decision and their nursing activity after implementing it. *Nursing Ethics,* 18 (6), pp. 802-813.

Perkins, G.D., Handley, A.J., Koster, R.W., Castrén, M., Smyth, M.A., Olasveengen, T., Monsieurs, K.G., Raffay, V., Gräsner, J. and Wenzel, V. (2015) European Resuscitation Council Guidelines for Resuscitation 2015: Section 2. Adult basic life support and automated external defibrillation. *Resuscitation,* 95, pp. 81-99.

Pettersson, M., Hedström, M. and Höglund, A.T. (2014) Striving for good nursing care: Nurses' experiences of do not resuscitate orders within oncology and hematology care. *Nursing Ethics,* 21 (8), pp. 902-915.

Polkinghorne, D.E. (2005) Language and meaning: Data collection in qualitative research. *Journal of Counseling Psychology,* 52 (2), p. 137.

Portanova, J., Irvine, K., Yi, J.Y. and Enguidanos, S. (2015) It isn't like this on TV: Revisiting CPR survival rates depicted on popular TV shows. *Resuscitation,* 96, pp. 148-150

Public Health England (2017) *The Role of Care Homes in End of Life Care.* Place and Cause of Death of Residnets of Care Homes. London: Public Health England, p. 1.

Rabkin, M.T., Gillerman, G. and Rice, N.R. (1976) Orders not to resuscitate. *The New England Journal of Medicine,* 295 (7), pp. 364-366.

Raoofi, N., Raoofi, S., Jalali, R., Abdi, A. and Salari, N. (2021) The worldwide investigating nurses' attitudes towards do-not-resuscitate order: a review. *Philosophy, Ethics, and Humanities in Medicine : PEHM,* 16 (5), pp. 1 - 10.

RCN, BMA and RCUK (2007) *Decisions Relating to Cardiopulmonary Resuscitation.* 2nd ed. London: RCN.

RCN, BMA and RCUK (2014) *Decisions Relating to Cardiopulmonary Resuscitation.* 3 ed. London: RCN.

RCN, BMA and RCUK (2016) *Decisions Relating to Cardiopulmonary Resuscitation.* 3rd ed (1st revision). London: RCN, p. 5.

RCUK (2020) *Resuscitation Council UK Statements on COVID-19, CPR and Resuscitation.* London: RCUK. Available: https://www.resus.org.uk/media/statements/resuscitation-council-uk-statements-on-covid-19-coronavirus-cpr-and-resuscitation/decisionmaking-statement/ [Accessed: 7th April 2020].

Rees, J., King, L. and Schmitz, K. (2009) Nurses' perceptions of ethical issues in the care of older people. *Nursing Ethics,* 16 (4), pp. 436-452.

Safar, P. (1989) Initiation of closed-chest cardiopulmonary resuscitation basic life support. A personal history. *Resuscitation,* 18 (1), pp. 7-20.

Scottish Government (2010) *Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) - integrated adult policy: guidance.* Glasgow: Scottish Government, p. 13.

Stake, R.E. (2013) *Multiple case study analysis.* London: Guilford Press, p 3.

Shepherd, J., Waller, A., Sanson-Fisher, R., Clark, K. and Ball, J. (2020) Where would acute care nurses prefer to receive end-of-life care? A cross-sectional survey. *International Journal of Nursing Studies,* p. 103683.

Stephenson, H.E.,Jr, Reid, L.C. and Hinton, J.W. (1953) Some common denominators in 1200 cases of cardiac arrest. *Annals of Surgery,* 137 (5), pp. 731-744.

Taubert, M. and Baker, J.I. (2020) 'Do Not Attempt CPR' and the concept of harm. *Medicine,* 48, (10), pp. 651 – 652.

Ten Have, H. (2021) Deontology, Professional. *Dictionary of Global Bioethics.* Springer, pp. 403-403.

Thibault-Prevost, J., Jensen, L.A. and Hodgins, M. (2000) Critical care nurses' perceptions of DNR status. *Journal of Nursing Scholarship,* 32 (3), pp. 259-265.

Tomlinson, T. and Brody, H. (1990) Futility and the ethics of resuscitation. *Jama,* 264 (10), pp. 1276-1280.

Tricco, A.C., Lillie, E., Zarin, W., O'Brien, K.K., Colquhoun, H., Levac, D., Moher, D., Peters, M.D., Horsley, T. and Weeks, L. (2018) PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Annals of Internal Medicine,* 169 (7), pp. 467-473.

Tuckett, A.G. (2000) Virtuous principles as an ethic for nursing. *Contemporary Nurse,* 9 (2), pp. 106-114.

Udesen, S.E.J., Rasmussen, C., Mikkelsen, S., Andersen, N., Brabrand, M. and Lassen, A.T. (2023) Mobile emergency department care to nursing home residents: a novel outreach service. Age and Ageing, 52 (3), pp. afad025.

University of Stirling (2017) *Ethics Decision Tree - General University Ethics Panel.* Scotland: UoS. Available: https://www.stir.ac.uk/research/integritygovernanceethics/researchethics/researchethicscommittees/guep/ [Accessed: 11th April 2017].

Vivas, L. and Carpenter, T. (2021) Meaningful futility: requests for resuscitation against medical recommendation. *Journal of Medical Ethics,* 47 (10), pp. 654-656.

White, B.P., Willmott, L. and Close, E. (2020) Futile, Non-beneficial, Potentially Inappropriate or 'Disputed' Treatment. *Contemporary European Perspectives on the Ethics of End of Life Care.* Springer, pp. 181-198.

Wilks, J. and Pendergast, D. (2017) Skills for life: First aid and cardiopulmonary resuscitation in schools. *Health Education Journal,* 76 (8), pp. 1009-1023.

Yin, R.K. (2009) *Case study research and applications: Design and methods.* 4th ed. New York: Sage publications. p. 2.

Zander, P.E. (2007) Ways of knowing in nursing: The historical evolution of a concept. *Journal of Theory Construction & Testing,* 11 (1), pp. 7 - 22.

Appendix 1 List of Figures

Appendix 2 List of Tables

Appendix 3: NCEPOD Case Studies from "*Time to Intervene*"

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Case study 1 gives an example of where CPR would have been appropriate but was not attempted – inappropriate inaction.

An elderly patient was admitted to a medical assessment unit because of shortness of breath. The patient had a long past medical history including life-long smoking, diabetes, ischaemic heart disease, previous coronary artery surgery, heart failure and chronic kidney disease. The patient was assessed promptly by an FY2 doctor who made a differential diagnosis of heart failure or chest infection and started treatment with antibiotics and increased diuretics. At the time the patient was distressed and unable to speak, oxygen saturations were 84% on high-flow oxygen, respiratory rate was 32 breaths per minute, blood pressure was 85/45 mmHg, pulse rate 140 beats per minute (atrial fibrillation) and arterial blood gasses showed a compensated metabolic acidosis. There was no record of escalation to more senior doctors. Six hours after admission to the medical assessment unit the patient had a PEA cardiac arrest and despite prompt CPR that continued for 15 minutes the patient could not be resuscitated. The patient had not been reviewed by any senior doctors prior to this. Advisors raised concerns about recognition of severity of situation and escalation to more senior doctors. They also raised concern that there was no intervention to treat rapid atrial fibrillation. The Advisors considered that more senior involvement may have led to a referral for higher level of care and also that CPR status may have been considered.

Case study 2 gives an example of where resuscitation should not have been attempted but was – inappropriate action.

An elderly patient was admitted to hospital from a nursing home with abdominal pain and vomiting. Past medical history included diabetes, atrial fibrillation, ischaemic heart disease

and dementia. The patient was very dependent on help with activities of daily living. On assessment the patient was noted to be very frail. Blood pressure was unrecordable and the patient was unrouseable. Biochemistry revealed severe renal impairment (urea 32 mmol/l, creatinine 507 microm/l), a profound metabolic acidosis (pH 7.05) and raised lactate (12 mmol/l). The patient was reviewed jointly by ST2 doctors from medicine and surgery who decided that at that time the patient was not stable enough to have CT of the abdomen, but that ischaemic bowel was the most likely diagnosis. The plan was to commence fluid resuscitation and re-assess. It was noted that the outcome was likely to be poor but no decision about CPR status was documented. More senior doctors were not consulted. The patient had a cardiac arrest 4 hours later and underwent 10 minutes of CPR. This was unsuccessful. The Advisors raised concerns that there was a lack of appreciation of the severity and urgency in this case and that escalation to senior doctors should have taken place and CPR status considered.

Case study 3 gives an example of the denial to the patient of a dignified death – inappropriate action.

A very elderly patient was admitted to hospital after collapsing at home. On admission they had a GCS of 9. A CT scan of their brain revealed extensive subarachnoid haemorrhage and the patient was admitted to a ward for ongoing care. Over the next 24 hours the patient's condition deteriorated and they became more obtunded. At the request of family members a chaplain visited to offer comfort. Sixteen hours later the patient had a cardiac arrest and the resuscitation team was summoned. CPR was initiated and continued for approximately 10 minutes. No return of circulation was achieved and death was certified. It appeared that death was the expected outcome in this case but a plan for what to do in the event of cardiac arrest had not be written down. The Advisors considered that this CPR attempt appeared inappropriate and was an undignified process at the end of life.

Case study 4 gives an example of prolonged CPR being attempted despite it having negligible or no chance of success - inappropriate action.

A middle-aged patient was admitted to hospital with severe chest pain. The patient was known to have a thoraco-abdominal aortic aneurysm and surgical or radiological intervention had previously been ruled out following multidisciplinary team assessment. The patient had chronic lung disease and home oxygen therapy had been prescribed. The patient was hypotensive and appeared pale. Fluids, oxygen and analgesia were prescribed whilst basic investigations were started. The impression was that this was a leaking aneurysm. Little analgesia was given due to concerns over respiratory depression and the patient continued to complain of severe pain. Four hours after admission to the surgical assessment unit the patient had a cardiac arrest. CPR was commenced and continued for 20 minutes until the on-call surgical consultant arrived. CPR was stopped after assessment of the situation at that time and death confirmed.

Appendix 4: List of Articles Screened and Excluded in the Scoping Review

Anthonypillai, F. (1992) Retention of advanced cardiopulmonary resuscitation knowledge by intensive care trained nurses. *Intensive & Critical Care Nursing,* 8 (3), pp. 180-184.

Armitage, E. and Jones, C. (2017) Paramedic attitudes towards DNACPR orders. *Journal of Paramedic Practice,* 9 (10), pp. 445-452.

Asai, T., Moriyama, S., Nishita, Y. and Kawachi, S. (2003) Use of the laryngeal tube during cardiopulmonary resuscitation by paramedical staff. *Anaesthesia,* 58 (4), pp. 393-394.

Bakalis, N. (2008) Commentary on Kelly J (2007) Literature review: decision-making regarding slow resuscitation. Journal of Clinical Nursing, 16, 1989-1996. *Journal of Clinical Nursing,* 17 (13), pp. 1818-1819.

Bertoglio, V.M., Azzolin, K., de Souza, E.N. and Rabelo, E.R. (2008) [Training in cardiopulmonary resuscitation: impact on the theoretical knowledge of nurses]. *Revista Gaúcha De Enfermagem / EENFUFRGS,* 29 (3), pp. 454-460.

Bertolo, V.F., Soares Rodrigues, C.D., Helú Mendonça Ribeiro, Rita, de C., Cesarino, C.B. and Souza, L.H. (2014) Knowledge of cardiopulmonary resuscitation among pediatric emergency staff. *Revista Enfermagem UERJ,* 22 (4), pp. 546-550.

Blanco González, C., Bravo Abraldes, R., González Andelo, C., Iglesias Mosquera, T., Trujillo Jericó, F., Vázquez, A., and Conde Fernández, J.M. (1996) [Cardiopulmonary resuscitation. How much do nurses know?]. *Revista De Enfermería (Barcelona, Spain),* 19 (210), pp. 50-52.

Britton, J.R. (1997) Neonatal nurse practitioner and physician use on a newborn resuscitation team in a community hospital. *Journal of Pediatric Health Care: Official Publication of National Association of Pediatric Nurse Associates & Practitioners,* 11 (2), pp. 61-65.

Brooks, G. (2004) Assessment of student Advanced Neonatal Nurse Practitioners in resuscitation and stabilisation of the newborn: the use of the Objective Structured Clinical Examination. *Journal of Neonatal Nursing,* 10 (6), pp. 184-188.

Broomfield, R. (1996) A quasi-experimental research to investigate the retention of basic cardiopulmonary resuscitation skills and knowledge by qualified nurses following a course in professional development. *Journal of Advanced Nursing,* 23 (5), pp. 1016-1023.

Broyles, B., Connaughton, S., Walker, W.T., Mendiratta, S., Whittle, J. and Seaberg, D. (2016) 281 Staff Perception of Family Presence During Adult Cardiopulmonary Resuscitation. *Annals of Emergency Medicine,* 68, pp. S109-S110.

Camargo, J.C.M., Velázquez, M.R., Martínez, M.M., Ramírez, Á.A., López, J.,Francisco Ruiz, Serrano, P.R., Maeso, M.J.E., Fernández-Infantes, S.P. and Rodríguez, A.L. (2011) Knowledge of cardiopulmonary resuscitation by the nursing professional in patient monitoring units. *Metas De Enfermería,* 14 (1), pp. 10-15.

Carmona Torres, J.M. (2014) Questionnaire on nurses' knowledge regarding the current cardiopulmonary resuscitation recommendations 2010. *Enfermeria Clinica,* 24 (5), pp. 308-310.

Chen, M., Yu, S., Chen, I., Wang, K.K., Lan, Y. and Tang, F. (2014) Evaluation of nurses' knowledge and understanding of obstacles encountered when administering resuscitation medications. *Nurse Education Today,* 34 (2), pp. 177-184.

Chun, S.H., Oh, Y.H. and Kim, S.S. (2011) Cardiopulmonary Resuscitation Learning Experience, Knowledge, and Performance in Newly Graduated Nurses. *Journal of Korean Academy of Fundamentals of Nursing,* 18 (2), pp. 1p-1p.

Citolino Filho, C.M., Santana Santos, E., de Cassia Gengo, S. and de, S.N. (2015) Factors affecting the quality of cardiopulmonary resuscitation in inpatient units: perception of nurses. *Revista Da Escola De Enfermagem Da USP,* 49 (6), pp. 907-913.

Coleman, J.J., Botkai, A., Marson, E.J., Evison, F., Atia, J., Wang, J., Gallier, S., Speakman, J., Pankhurst, T. and H Botkai, Adam. (2020) Bringing into focus treatment limitation and DNACPR decisions: How COVID-19 has changed practice. *Resuscitation,* 155, pp. 172-179

Dal, U. and Sarpkaya, D. (2013) Knowledge and psychomotor skills of nursing students in North Cyprus in the area of cardiopulmonary resuscitation. *Pakistan Journal of Medical Sciences,* 29 (4), pp. 966-971.

de Almeida, A.O., Araújo, I.,Esmenia Muglia, Dalri, M.C.B. and Araujo, S. (2011) Theoretical knowledge of nurses working in non-hospital urgent and emergency care units concerning cardiopulmonary arrest and resuscitation. *Revista Latino-Americana De Enfermagem,* 19 (2), pp. 261-268.

Donnelly, P.D. and Weston, C.F. (1995) Ambulance staff exercise discretion over resuscitation decision. *BMJ (Clinical Research Ed.),* 311 (7009), pp. 877-878.

Doolin, C.T., Quinn, L.D., Bryant, L.G., Lyons, A.A. and Kleinpell, R.M. (2011) Family presence during cardiopulmonary resuscitation: using evidence-based knowledge to guide the advanced practice nurse in developing formal policy and practice guidelines. *Journal of the American Academy of Nurse Practitioners,* 23 (1), pp. 8-14.

Ferrara, G., Ramponi, D. and Cline, T.W. (2016) Evaluation of Physicians' and Nurses' Knowledge, Attitudes, and Compliance with Family Presence During Resuscitation in an Emergency Department Setting After an Educational Intervention. *Advanced Emergency Nursing Journal,* 38 (1), pp. 32-42.

Franklin, P.D. (1999) The child with a chronic condition, commentary on Dracup K, Doering LV, Moser DK et al (1998). Retention and use of cardiopulomnary resuscitation skills in parents of infants at risk for cardiopulmonary arrest. PEDIATRIC NURSING, 24(3), 219-225. *Journal of Child & Family Nursing,* 2 (1), pp. 48-49.

Gass, D.A. and Curry, L. (1983) Physicians' and nurses' retention of knowledge and skill after training in cardiopulmonary resuscitation. *Canadian Medical Association Journal,* 128 (5), pp. 550-551.

Gazmuri, R.J., Nadkarni, V.M., Nolan, J.P., Finn, J., Hammill, W.W., Handley, A.J., Hazinski, M.F., Hickey, R.W., Jacobs, I., Jauch, E.C., Kloeck, W.G.J., Mattes, M.H., Montgomery, W.H., Morley, P., Morrison, L.J., Nichol, G., O'Connor, R.E., Perlman, J., Richmond, S. and Sayre, M. (2007) Scientific knowledge gaps and clinical research priorities for cardiopulmonary resuscitation and emergency cardiovascular care identified during the 2005 International Consensus Conference on E and CPR Science with treatment recommendations: a consensus statement from the International Liaison Committee on Resuscitation (American Heart Association, Australian Resuscitation Council, European Resuscitation Council, Heart and Stroke Foundation of Canada, InterAmerican Heart Foundation, Resuscitation Council of Southern Africa, and the New Zealand Resuscitation Council); the American Heart Association Emergency Cardiovascular Care Committee; the Stroke Council; and the Cardiovascular Nursing Council. *Circulation,* 116 (21), pp. 2501-2512.

Gluck, D.M. (2014) *How past experiences impact a nurse's decision about family presence during resuscitation: A phenomenological study.* University of Phoenix.

Gregoriou, P., Theodorou, M., Bilali, A., Rousou, E., Charitou, A. and Galanis, P. (2015) Effectiveness of an educational program in cardiopulmonary resuscitation concerning knowledge of nurses in Cyprus. *Nursing Care & Research / Nosileia Kai Ereuna,* (42), pp. 40-40.

Hamilton, R. (2005) Nurses' knowledge and skill retention following cardiopulmonary resuscitation training: a review of the literature. *Journal of Advanced Nursing,* 51 (3), pp. 288-297.

Harrington, L., Price, K. and Edmonds, P. (2020) From paper to paperless: Do electronic systems ensure safe and effective communication and documentation of DNACPR decisions? *Clinical Medicine,* 20 (3), pp. 329-333

Heidarzadeh, A., forouzi, M.A., kazemi, M. and Jahani, Y. (2015) The Effect of Computer Simulation and Mannequin on Nursing Students' Perception of Self-efficacy in Cardiopulmonary Resuscitation. *Iranian Journal of Medical Education,* 14 (10), pp. 861-869.

Hickman, S.E., Tolle, S.W., Brummel-Smith, K. and Carley, M.M. (2004) Use of the Physician Orders for Life-Sustaining Treatment program in Oregon Nursing Facilities: beyond resuscitation status. *Journal of the American Geriatrics Society,* 52 (9), pp. 1424-1429.

Hubballi, J.G., Sumitra, L.A. and Raddi, S.A. (2014) Randomized Control Trial to Evaluate the effectiveness of Helping Babies Breathe Programme on Knowledge and Skills Regarding

Neonatal Resuscitation among Auxiliary Nurse Midwives Students. *International Journal of Nursing Education,* 6 (1), pp. 146-151.

Jones, A., Peckett, W., Clark, E., Sharpe, C., Krimholtz, S., Russell, M. and Goodwin, T. (1993) Nurses' knowledge of the resuscitation status of patients and action in the event of cardiorespiratory arrest. *BMJ: British Medical Journal (International Edition),* 306 (6892), pp. 1577-1578.

Kanter, R.M. (2003) *Challenge of organizational change: How companies experience it, and leaders guide it.* Simon and Schuster.

Koo, H.J. and Yoo, Y. (2011) Perception and attitude of emergency medical staff to family presence during cardiopulmonary resuscitation. *Korean Journal of Adult Nursing,* 23 (6), pp. 624-632.

Leontiou, I. (2001) Knowledge, working practices and interventions of nurses in cardiopulmonary resuscitation: a literature review. *ICUs & Nursing Web Journal,* (5), pp. 12p-12p.

Luppi, C.J. (1999) Cardiopulmonary resuscitation in pregnancy. What all nurses caring for childbearing women need to know. *AWHONN Lifelines / Association of Women's Health, Obstetric and Neonatal Nurses,* 3 (3), pp. 41-45.

Lynch, J.P. (2012) School nurse uses CPR to save teacher's life. *Nurse.Com Nursing Spectrum (New York/New Jersey Metro),* 24 (18), pp. 1-1.

Madden, E. (2007) Emergency nurses' current practices and understanding of family presence during cardio-pulmonary resuscitation...7th Annual Cardiovascular Nursing Spring Meeting of the European Society of Cardiology Council on Cardiovascular Nursing and Allied Professions: changing practice to improve care Manchester, UK 23-24 March 2007. *European Journal of Cardiovascular Nursing,* 6, pp. S6-7.

Malo, C., Neveu, X., Archambault, P.M., Emond, M. and Gagnon, M. (2012) Exploring nurses' intention to use a computerized platform in the resuscitation unit: development and validation of a questionnaire based on the theory of planned behavior. *Interactive Journal of Medical Research,* 1 (2), pp. e5-e5.

Maria Torquato, I., Bruno Rodrigues, M., Figueiredo Nogueira, M., Von Sasten Trigueiro, J., Montenegro, d.A. and de, A.F. (2012) Knowledge from the Nursing Team on the Assistance in Cardiopulmonary Resuscitation. *Journal of Nursing UFPE / Revista De Enfermagem UFPE,* 6 (12), pp. 2874-2883.

Martens, P. (1994) The use of the laryngeal mask airway by nurses during cardiopulmonary resuscitation. *Anaesthesia,* 49 (8), pp. 731-732.

McRae, M.E. (2017) Team-Based Learning Improves Staff Nurses' Knowledge of Open- and Closed-Chest Cardiac Surgical Resuscitation. *Dimensions of Critical Care Nursing,* 36 (1), pp. 60-67.

Mora, A., Beger, A., Wooley, L. and Schertz, K. (2019) 1509: Simulation Training Reveals Nurse and Respiratory Therapist Ability to Execute Resuscitation Efforts. *Critical Care Medicine,* 47, pp. 730-730

Nagashima, K., Suzuki, A., Takahata, O., Sengoku, K., Fujimoto, K., Yokohama, H. and Iwasaki, H. (2002) [A questionnaireon cardio-pulmonary resuscitation knowledge of the nursing staff in the Asahikawa Medical College Hospital]. *Masui.the Japanese Journal of Anesthesiology,* 51 (1), pp. 68-70.

Nagashima, K., Takahata, O., Fujimoto, K., Suzuki, A. and Iwasaki, H. (2003) [Investigation on nurses' knowledge of and experience in cardiopulmonary resuscitation and on nurses' knowledge of the guidelines for cardiopulmonary resuscitation and emergency cardiovascular care established in 2000--results of a questionnaire at Asahikawa Medical College Hospital (second report)]. *Masui.the Japanese Journal of Anesthesiology,* 52 (4), pp. 427-430.

Nelson, J. (1991) A questionnaire of theatre nurse's knowledge and ability in cardiopulmonary resuscitation: main study introduction. part 2. *British Journal of Theatre Nursing,* 1 (8), pp. 11-13.

Oh, S.I. and Han, S.S. (2008) [A study on the sustainable effects of re-education on cardiopulmonary resuscitation on nurses' knowledge and skills]. *Taehan Kanho Hakhoe Chi,* 38 (3), pp. 383-392.

Passali, C., Pantazopoulos, I., Dontas, I., Patsaki, A., Barouxis, D., Troupis, G. and Xanthos, T. (2011) Evaluation of nurses' and doctors' knowledge of basic & advanced life support resuscitation guidelines. *Nurse Education in Practice,* 11 (6), pp. 365-369.

Pedersoli, C.E., Chianca, T., Cyrillo, R.M.Z. and Galvão, C.M. (2011) Nursing use of laryngeal masks in cardiopulmonary resuscitation: an integrative literature review. *Texto & Contexto Enfermagem,* 20 (2), pp. 376-383.

Plagisou, L., Tsironi, M., Zyga, S., Moisoglou, G., Maniadakis, N. and Prezerakos, P. (2016) Nursing staff's theoretical knowledge of cardiovascular resuscitation in Greece. *Resuscitation,* 106, pp. e38-e38.

Plagisou, L., Tsironi, M., Zyga, S., Moisoglou, I., Maniadakis, N. and Prezerakos, P. (2015) Assessment of nursing staff's theoretical knowledge of cardiovascular resuscitation in an NHS public hospital. *Hellenic Journal of Cardiology: HJC = Hellēnikē Kardiologikē Epitheōrēsē,* 56 (2), pp. 149-153.

Powers, K.A. and Candela, L. (2016) Family Presence During Resuscitation: Impact of Online Learning on Nurses' Perception and Self-confidence. *American Journal of Critical Care: An Official Publication, American Association of Critical-Care Nurses,* 25 (4), pp. 302-309.

Pye, S., Kane, J. and Jones, A. (2010) Parental presence during pediatric resuscitation: the use of simulation training for cardiac intensive care nurses. *Journal for Specialists in Pediatric Nursing,* 15 (2), pp. 172-175.

Rajeswaran, L. and Ehlers, V.J. (2014) Cardiopulmonary resuscitation knowledge and skills of registered nurses in Botswana. *Curationis,* 37 (1), pp. 1259-1259.

Reddy, G.K. and Kaur, S.P. (2014) To assess the Effectiveness of Planned Teaching on Knowledge Regarding Newborn Resuscitation among the Nurses of Pediatric Units in Selected Hospitals of Vidarbha Region. *International Journal of Nursing Education,* 6 (2), pp. 109-111.

Riley, C. (2015) Building Nurse Capacity Related to Neonatal Resuscitation Training in Hyderabad, India, Using the Knowledge to Action Framework. *Newborn & Infant Nursing Reviews,* 15 (4), pp. 156-158.

Roberts, M. and Miller, S.A. (2019) Implementation of an Innovative Nurse-Driven Resuscitation Protocol. *Journal of Nursing Administration,* 49 (7), pp. 372-376

Robertson, J. (2009) Helping nephrologists, staff understand DNR orders. *Nephrology News & Issues,* 23 (9), pp. 32-33.

Roh, Y.S. and Issenberg, S.B. (2014) Association of cardiopulmonary resuscitation psychomotor skills with knowledge and self-efficacy in nursing students. *International Journal of Nursing Practice,* 20 (6), pp. 674-679.

Roy, R., Ravindra, H.N. and Jain, P.K. (2015) Impact of Health Awareness Programme on Knowledge and Practice Regarding Revised Protocol of Delivering Cardiopulmonary Resuscitation (CPR) among Nursing Students. *International Journal of Nursing Education,* 7 (2), pp. 44-48.

Russell, K.S. (1997) *The relationship among structure, technology, autonomy, decision-making, nurse characteristics and the decision to call a resuscitation code on the patient who needs cardiopulmonary resuscitation.* Medical College of Georgia.

Ryan, A., Rizwan, R., Williams, B., Benscoter, A., Cooper, D.S. and Iliopoulos, I. (2019) Simulation Training Improves Resuscitation Team Leadership Skills of Nurse Practitioners. *Journal of Pediatric Healthcare,* 33 (3), pp. 280-287.

Sandbach, D.D., Nicholls, T., Wilson, A., Ercole, A. and Barnard, E.B.G. (2019) Resuscitation of patients with active Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) status after out-of-hospital cardiac arrest. *Resuscitation,* 142, pp. 23-24

Sankar, J., Vijayakanthi, N., Sankar, M.J. and Dubey, N. (2013) Knowledge and skill retention of in-service versus preservice nursing professionals following an informal training program in pediatric cardiopulmonary resuscitation: a repeated-measures quasiexperimental study. *Biomed Research International,* 2013, pp. 403415-403415.

Silva, J.M.d.S., Steremberg, S. and Valensa, M.P. (2012) Nurses' Knowledge, Attitude, and Practice when Facing Cardiac Arrest and Cardiopulmonary Resuscitation. *Journal of Nursing UFPE / Revista De Enfermagem UFPE,* 6 (6), pp. 1495-1499.

Smith, S. and Hatchett, R. (1992) Perceived competence in cardiopulmonary resuscitation, knowledge and skills, amongst 50 qualified nurses. *Intensive & Critical Care Nursing,* 8 (2), pp. 76-81.

Subeq, Y., Peng, T., Hsu, B., Yang, F. and Lee, R. (2010) [Fluid resuscitation therapy application and nursing following hemorrhagic shock]. *The Journal of Nursing,* 57 (1), pp. 17-21.

Szarpak, L., Filipiak, K.J., Ładny, J.R. and Smereka, J. (2016) Should nurses use mechanical chest compression devices during cardiopulmonary resuscitation? Preliminary data. *The American Journal of Emergency Medicine,* 34(10), 2004 – 2017.

Tagney, G.C. (1994) [Commentary on] Reported use of autotransfusion systems in initial resuscitation areas by one hundred thirty-six United States hospitals. Murdock MA, Roberson ML. J EMERG NURS 1993;19(6):486-90. *AACN Nursing Scan in Critical Care,* 4 (3), pp. 21-22.

Ten Eyck, R.P., Tews, M., Ballester, J.M. and Hamilton, G.C. (2010) Improved fourth-year medical student clinical decision-making performance as a resuscitation team leader after a simulation-based curriculum. *Simulation in Healthcare: Journal of the Society for Simulation in Healthcare,* 5 (3), pp. 139-145.

Thorns, A.R. and Ellershaw, J.E. (1999) A questionnaire of nursing and medical staff views on the use of cardiopulmonary resuscitation in the hospice. *Palliative Medicine,* 13 (3), pp. 225-232.

Tivener, K.A. and Gloe, D.S. (2015) The Effect of High-Fidelity Cardiopulmonary Resuscitation (CPR) Simulation on Athletic Training Student Knowledge, Confidence, Emotions, and Experiences. *Athletic Training Education Journal (Allen Press Publishing Services Inc.),* 10 (2), pp. 103-112.

Uhlmann, R.F., Pearlman, R.A. and Cain, K.C. (1989) Understanding of elderly patients' resuscitation preferences by physicians and nurses. *The Western Journal of Medicine,* 150 (6), pp. 705-707.

Wilson, D.M. (1996) Highlighting the role of policy in nursing practice through a comparison of 'DNR' policy influences and 'no CPR' decision influences. *Nursing Outlook,* 44 (6), pp. 272-279.

Yun, J.Y. and In, S.K. (2014) Nursery Teachers' Knowledge, Attitude and Performance Ability in Cardiopulmonary Resuscitation. *Child Health Nursing Research,* 20 (4), pp. 304-313.

Zanini, J., Nascimento, E.R.P. and Barra, D.C.C. (2006) [Cardiac arrest and cardiopulmonary resuscitation knowledge of Critical Care Nursing]. *Revista Brasileira De Terapia Intensiva,* 18 (2), pp. 143-147.

Zeitzer, M.B. (2009) *Ethical issues and decision making related to resuscitation of severely injured patients: perceptions of emergency department nurses.* University of Pennsylvania.

Zientarska, E., Kaczyńska, A., Belowska, J., Panczyk, M., Dykowska, G., Sienkiewicz, Z. and Gotlib, J. (2015) The Attempt to Assess Nurses' Knowledge on Selected Aspects of Cardiopulmonary Resuscitation. *Polish Nursing / Pielegniarstwo Polskie,* 58 (4), pp. 391-396.

Appendix 5: Study Questionnaire

UNIVERSITY of STIRLING

Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) in Nursing Practice.

Welcome & Introduction.

Thank you for visiting this survey, the information on this page will help you decide if you would like to complete the survey or not and gives you information about how to get in contact if you have any questions. You will be asked if you are happy that you understand the study and want to complete the survey.

This survey is about DNACPR in nursing. It is part of a study for a Clinical Doctorate in Nursing at the University of Stirling. You can find a detailed information leaflet about the study by clicking HERE

The study aims to explore Nurse understanding of DNACPR with a view to improving practice. The survey does not require your name or contact information - and information about the device you use to complete the survey is not gathered or stored. If you would like to read the study results they will be posted @JPNNolan on Twitter and on the study website when complete in autumn 2019.

If you have any questions about the study you can e-mail them to j.n.nolan@stir.ac.uk

The survey will take approximately 15 minutes to complete. There is no facility to partially complete the survey and return to finish later - so it should be completed in one response, you can see your progress at the bottom of each screen. Questions with a red asterisk require an answer before continuing. Should you decide at any point during the survey that you do not wish to take part, simply close the browser window and your responses will not be collected.

The survey has 26 questions in three sections; 1) questions about your nursing career 2) questions about DNACPR and 3) questions about patient scenarios. There are no right or wrong answers, simply answer the questions from your perspective as a registered nurse - thinking about your daily practice and the patients you care for.

Thank you
JP Nolan

Doctoral Researcher, School of Health Sciences & Sport
Pathfoot Building, University of Stirling, Stirling FK9 4LA, Scotland,

* 1. I have read and understood the study information leaflet and am willing to participate by completing the survey.

◯ Yes

◯ No

Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) in Nursing Practice.

Section 1.

You and Your Nursing Career.

* 2. How long have you been a registered nurse for? Select one of the below.

○ Less than one year   ○ 6- 10 years

○ 1 - 5 years   ○ More than 11 years

* 3. What is your gender? This helps to assess how representative the sample of nurses completing the survey is of the nursing profession.

○ Female   ○ I do not identify as either

○ Male

* 4. Where do you currently nurse? (You can select as many as needed if you work in a number of different settings).

☐ Nursing or Care Home   ☐ GP Practice

☐ Hospital   ☐ In clients own houses

☐ Community / District Nursing

☐ Other (please specify)

[   ]

* 5. What level of life support training do you have? Select one of the below.

○ None   ○ Intermediate Life Support

○ Basic Life Support   ○ Advanced Life Support

6. Have you gained postgraduate **specialist or advanced** nursing qualifications? You can select as many of the below that you have achieved?

- [ ] Older Person Nursing (formerly Geriatric Nursing)
- [ ] Emergency Nursing
- [ ] Intensive Care Nursing
- [ ] Perioperative Nursing
- [ ] Palliative Care Nursing

- [ ] Oncology / Cancer Nursing
- [ ] Other Medical Nursing Specialist
- [ ] Other Surgical Nursing Specialist
- [ ] Advanced Nurse Practitioner / ANP
- [ ] I have none of the above

7. What is the level of your highest nursing qualification? Select one of the below.

- ( ) Certificate
- ( ) Diploma
- ( ) Degrees

- ( ) Masters Degree
- ( ) Doctorate / PhD

8. Do you have management responsibility where you work? Select one answer.

- ( ) Yes - clinical and non-clinical
- ( ) Yes - only clinical
- ( ) Yes - only non-clinical
- ( ) No

* 9. Have you ever been the only registered Nurse on duty where you work (e.g. in your ward or department/ care or nursing home / practice or clinic / community team) Select one answer.

- ( ) Yes
- ( ) No

* 10. Thinking about the reality of your day-to-day nursing, for example your last shift, how much do you depend on each of the following to be able to deliver care to your patients. Select one option for each row.

	I don't depend on this at all day-to-day	I depend on this a little day-to-day	I depend on this a lot day-to-day	I totally depend on this day-to-day
National Clinical Evidence (NICE/SIGN)	○	○	○	○
Patient wishes and preferences	○	○	○	○
Local Policy	○	○	○	○
Information from patients families	○	○	○	○
National guidelines e.g Royal Colleges	○	○	○	○
Your own professional clinical judgment	○	○	○	○
The law of the country you work in	○	○	○	○
Your own prior Nursing experience	○	○	○	○
Doctors instructions	○	○	○	○
Handover from fellow nurses	○	○	○	○

Section 2

These questions are about DNACPR and other decisions related to CPR. There are no right or wrong answers so please answer guided by what you think - this is not a test or quiz and is not marked or scored. It is your opinion that counts.

* 11. Are DNACPR forms legally binding once completed?

○ Yes ○ I don't know

○ No

* 12. Who can sign a DNACPR form?

○ Only a doctor ○ A doctor, nurse or paramedic

○ A doctor or nurse ○ I don't know

13. Read each of the following statements about what DNACPR forms are for, and indicate if you think each one is true or false below. You need to select true or false for each row.

	True	False
DNACPR provides for a dignified death	○	○
DNACPR ensures frail elderly patients are not moved to A&E or Intensive Care when they begin to deteriorate	○	○
DNACPR is part of end of life care	○	○
DNACPR means comfort measures only are provided	○	○
DNACPR enables people to die where they want to	○	○

* 14. Thinking about your own practice, would you decide not to perform CPR on a patient in cardiac arrest if you believed it would be inappropriate, undignified or futile - even if that patient had no DNACPR form? Select one of the answers below.

○ If I believed CPR should not be performed I would not do it - ○ I am not sure.
even if the patient had no DNACPR form.

○ If there was no DNACPR form I would always do CPR even if
I thought it should not be performed.

15. In what percentage of cases of cardiac arrest do you think CPR works (that is when CPR achieves sustained return of circulation)? Select one answer below.

○ Up to 1%   ○ Up to 25%

○ Up to 5%   ○ Up to 30%

○ Up to 10%   ○ Up to 40%

○ Up to 15%   ○ Up to 50%

○ Up to 20%   ○ Over 50%

* 16. Thinking about your recent practice do you think you would have been able to decide if CPR (in the unfortunate event of a cardiac arrest) would have been likely to be successful or not for your own patients? Select one answer below.

○ Yes I would have been able to predict if CPR would have been successful or not for patients recently in my care

○ No I would not have been able to predict if CPR would have been successful or not for patients recently in my care

* 17. Nurses often perform CPR on patients who do have DNACPR oders in place. Would you ever consider doing this?

○ Yes   ○ I don't know

○ No

* 18. Which **ONE** of the following do you think **BEST** describes your duty as a nurse to a patient in cardiac arrest? Select the one answer that **BEST** describes this duty.

○ To do what my employers policy says to do, regardless of my   ○ To do what the patient care plan says to do
clinical opinion of that policy
                                                                 ○ To seek emergency help so they can make decisions
○ To do what I think is clinically appropriate even if it is outside
policy   ○ To do what the patient would have wanted

○ To do what is legally required of me

○ To follow the NMC Code

* 19. Can a nurse verify/confirm a patient death?

○ Yes   ○ I don't know

○ No

* 20. Thinking about the patients you nurse, if one of your patients has a valid DNACPR form in place how appropriate would you consider the following interventions to be for them? Answer for each row, - please take your time and consider each one.

	This would never be appropriate	This might be appropriate	This is appropriate in all cases
Surgery for a life threatening emergency surgical event	○	○	○
Intensive Care admission for deteriorating health e.g. pneumonia	○	○	○
IV antibiotics for infection	○	○	○
Non Invasive Ventilation for respiratory support e.g. in COPD	○	○	○
Renal Replacement Therapy (dialysis) for renal failure	○	○	○
CPR for a cardiac arrest	○	○	○
Blood transfusion for bleeding (as opposed to anemia)	○	○	○
Nebulizer therapy for respiratory distress	○	○	○
IV fluids for low blood pressure (as opposed to dehydration)	○	○	○
Total Parental Nutrition (TPN) for inability to eat / swallow	○	○	○
Chemotherapy for cancer	○	○	○

This section asks questions about patient scenarios. The scenarios are built from real situations.

You are being asked to answer questions about patient scenarios without access to all of the information you may feel you need. This is deliberate as a reflection of decision making in an emergency, please answer on the basis of your professional judgment with the information provided in each scenario.

Read the scenario first and then answer the question for each.

* 21. A 75 year-old man with terminal cancer is under your care. You were told at handover that he has a valid DNACPR. You have not seen the DNACPR form but the nurse handing over to you confirmed verbally the patient and his family discussed it with her earlier that day. You are called to the bathroom by another patient and the gentleman is unresponsive and in cardiac arrest. From the options below select ONE as your highest priority.

   ○ Start CPR and call for help   ○ Provide palliative care

   ○ Find the DNACPR form to confirm it is valid

* 22. An 82 year old lady with end stage dementia and end stage renal failure is under you care. It is reported to you at handover that the patient's doctor and family agreed a DNACPR should be in place. This discussion was recorded in the notes and you are shown the record of the agreement. The doctor has not completed the DNACPR form and it is recorded that this will be done the next day. Before the actual form is completed the patient has a cardiac arrest and you are first on the scene. From the options below select ONE as your highest priority.

   ○ Start CPR and call for help   ○ Provide palliative care

   ○ Have the DNACPR form completed

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* 23. You are caring for an 87 year old lady who has multiple co-morbidities including end stage heart failure and Alzheimers disease. She has a valid DNACPR form which you have seen and are happy with. She does not have capacity and as a result her son signed the DNACPR form with the doctor. The patient is found unresponsive when you are the only nurse on duty. The patient's daughter is present and asks that you resuscitate her mother. From the options below select ONE as your highest priority.

○ Start CPR and call for help   ○ Provide palliative care

○ Discuss the DNACPR form with the daughter

* 24. You have just started work and are immediately called by a junior colleague to a patient who is unwell. You do not know the patient but your colleague advises that the 79 year-old was diagnosed with prostate cancer last year and recently stopped therapy for this. The patient notes are at the bedside and indicate the patient also has chronic COPD. There is a completed DNACPR form in the notes which is signed by the patient himself and a doctor, but is dated two years earlier. The patient becomes unresponsive and is in cardiac arrest. From the options below select ONE as your highest priority.

○ Start CPR and call for help   ○ Provide palliative care

○ Confirm the DNACPR form with the Doctor

* 25. This is the final question. Thinking about your answers to the questions above, what was most important to you when deciding what your highest priority was? Rank all of the below from 1 most important at the top of the list, down to 10 least important at the bottom of the list.

**Drag and drop the options into the order you want, most important at the top, and the numbers will complete automatically.**

⋮⋮

[▲▼]

Not to get into trouble / be disciplined for your actions

⋮⋮

[▲▼]

To make sure you act within policy

⋮⋮

[▲▼]

To try and do what the patient would have wanted

⋮⋮

[▲▼]

To consider If CPR would be successful or not

⋮⋮

[▲▼]

To stay within your scope of practice

⋮⋮

[▲▼]

To adhere to the NMC Code

⋮⋮

[▲▼]

To preserve the patient's dignity

⋮⋮

[▲▼]

Your personal beliefs about death and dying

⋮⋮

[▲▼]

Not to do anything illegal

⋮⋮

[▲▼]

To be compassionate

Appendix 6: Participant Information Leaflet

A Mixed-Methods Study of DNACPR Forms in Nursing Practice

Participant Information Leaflet

Introduction

This leaflet is designed to provide you with information about a mixed-methods study of DNACPR forms in nursing practice. The leaflet is being made available to you as you have been invited to participate in the study by completing an online questionnaire. The information below will help you decide if you would like to participate or not. If you would like more information, regardless of whether you choose to participate or not please contact jpnolna@stir.ac.uk

Self-Care

Any nurse, no matter how experienced, can be emotionally affected as a result of elements of nursing practice. CPR and DNACPR can be distressing, and anyone who has been involved in a distressing situation related to this area of practice should bear this in mind when deciding to participate. There are some useful self-care guides for nurses who are experiencing work related stress or distress. "Stress and You, A Short Guide to Managing Pressure and Stress" can be found here (RCN 2015).

Who is leading the study?

The lead and only investigator is JP Nolan. The study is being conducted as part of a Clinical Doctorate in Nursing supervised at the University of Stirling.

Has the study been ethically approved?

Yes, the study has been approved by the General University Ethics Panel, University of Stirling.

What is the study for?

The study aims to explore the use of DNACPR forms in nursing practice. There are two research questions.

What do nurses understand about DNACPR forms?

How do these understandings impact nursing care?

Why is the study being done?

Decisions related to CPR are described by professional bodies as emotive, complex and ethically challenging. DNACPR is also a regular subject in regulatory hearings and medical-legal cases. There have in addition been a number of reports from national agencies (NCEPOD 2012) and charities (MENCAP 2012) highlighting confusion related to DNACPR forms.

There are no studies to date that seek to specifically answer the questions above. The study intends to prevent harm and facilitate nurses in practice by answering these questions. This will be achieved by making recommendations for clinical practice and policy based on the study findings. The findings will be published and shared with participants and professional bodies.

How is the study being done?

The study uses an exploratory mixed-methods design. This mix of methods allows the analysis of data to help build a tool to collect and analyse more data. In this case existing data, NMC hearing notes, have been analysed qualitatively to identify themes. The themes were used to build the questionnaire which you are being invited to complete.

Why have I been invited to take part?

The sampling method to find participants is convenience, that is the invitation has been sent to an entire study population – in this instance the RCN Older Peoples Nursing Forum. All forum members have received the invitation. The reason the older peoples forum has been chosen is because the age profile of in-hospital patients and residential service users is in the majority older (RCP 2013).

How will my information be managed?

To complete the questionnaire, you do not need to provide any of your personal details. If you choose to there is an option to provide an e-mail address so that you can receive a copy of the research publication when it is complete. All of the information provided, your responses and e-mail addresses (of respondents who chose to leave one) will be encrypted, password protected and held on a secure (also encrypted) computer which is within a secure office location.

How much time will the questionnaire take?

To complete the online questionnaire will take between 15 and 20 minutes. You will be able to see how much of the questionnaire you have left to complete on each page.

How do I actually complete the questionnaire?

To complete the questionnaire, go to the website link in your invitation email, if you are not already reading this information there. You will see some brief instruction and a consent box to tick, indicating you are consenting to participate, and that your responses can be used to answer the study questions – don't worry you can withdraw your consent at any time if you wish.

Once you have ticked the consent box you will see a "start button" simply click this to begin. There are a number of sections to work through – you will be able to complete them all in 20 minutes. The first section has some questions about you as a nurse and the second section has some questions about DNACPR forms. The final section describes scenarios and asks some questions about them.

Where can I find out more?

You can contact the lead investigator by e-mail at jp.nolan@stir.ac.uk.

Ethical Approval Form

SECTION A: Applicant details

A1. Name of applicant (principal researcher): Jonathan-Paul Nolan
A2. Email address: J.N.Nolan@stir.ac.uk
A3. Faculty affiliation: Health Sciences and Sport   **Division/Research group:** Health Sciences
A4. Designation: Research postgraduate X   Staff ☐
A5. RESEARCH POSTGRADUATES ONLY **Programme of study:** Clinical Doctorate in Nursing **Supervisor name:** Tony Robertson
A6. STAFF ONLY **Job title:** Click here to enter job title
A7. Details of additional internal applicant(s):   **Not applicable X** **Name:** Jayne Donaldson   **Faculty:** Health Sciences and Sport   **Division:** **Post held: Dean**   **Hrs/week on project:** *Copy and paste the above to add further applicants*
A8. Details of additional external applicant(s):   **Not applicable X** **Name:** Click here to enter name   **Institution:** Click here to enter text **Post held:** Click here to enter text *Copy and paste the above to add further applicants*
A9. Is ethical review by an external body required?   Yes ☐   No X **If YES, at what stage is this at?** Choose an item
A10. Type of review required: Light touch ☐   Full review X *Although the GUEP will determine what kind of review is required, you may request a light touch review if you think it is justified. Please refer to the ESRC Framework for Research Ethics for examples of research that would normally require full review.*
A11. Supporting documentation: Please submit all applicable documents with this form: Participant info sheets X   Consent forms ☐   Risk assessments ☐   Data collection instruments ☐ Interview schedules or topic guides ☐   Participant recruitment materials Other X Please specify: Draft letter to the Nursing & Midwifery Council regards the intention to use information published by them in the public domain as a secondary source of data (Appendix 1). Participant Information sheet (Appendix 2).

B1. Project title: Nurse Understandings of DNACPR Forms in Practice; a Mixed-Methods Exploration.

B2. Project funder: Clinical Doctorate Fees - University of Stirling 50%, Health Service Executive 50%

B3. Project start date: 01/09/2017	**Project end date: 01/09/2020**

B4. Short project description:

This proposed mixed-methods study of 'Do Not Attempt CPR' (DNACPR) forms in nursing practice aims to explore understandings and use (or misuse) of DNACPR forms among nurses, and the impact of those understandings on nursing care. The research questions are: 1. What do nurses understand about DNACPR forms i.e., their intended purpose and legal standing and 2. If and how those understandings affect nursing care and risk of harm?

An exploratory, sequential, mixed-methods (qualitative – quantitative) applied heath research design and approach is proposed. A qualitative analysis of secondary data will inform the construction of a vignette-based questionnaire.

The proposed secondary data are published transcripts of Nursing and Midwifery Council (NMC) rulings in substantive conduct and competence hearings of cases regarding DNACPR in nursing practice. Specifically, a case study approach with cross-case-analysis will be applied, supported by NVIVO, determining dominant themes cross-case. Further data related to these themes will then be gathered using a purpose built and internally validated questionnaire. Once the questionnaire is piloted and administered the resulting demographic and vignette related data will be analysed descriptively and statistically using SPSS.

The sample of secondary qualitative data will consist of all cases (n = 17) of substantive hearing transcripts published by the NMC in the public domain in which DNACPR was a central factor. These reports are public records and freely accessible for research purposes. The questionnaire will be self-administered by a random sample of 2.8% (n = 350) of the 12,500 members of the Royal College of Nursing (RCN) Older Peoples Forum. The population to be sampled (nurses caring for older people) is based on the existing evidence that the section of society most at risk of avoidable harm associated with DNACPR forms are older adults (see section B5 below). The size of the sample was determined using the WHO sample calculation table for quantitative research (Lwanga & Lemeshow 1991). RCN forums were specifically designed to allow nurse members direct peer-to-peer contact and in the case of the RCN Older People's Forum additionally to.

- Promote positive and inclusive approaches to care.

- Challenging barriers to good care.

- Contributing to the development of guidelines.

The findings will be used to inform the next version of the Resuscitation Council (UK), British Medical Association (BMA) and RCN guidelines on decisions related to CPR. Publications will be submitted to Resuscitation – the journal of the Europe Resuscitation Council.

B5. Provide a brief justification for the proposed study:

The proposed study is applied health research that is required to address a specific problem which has been identified and quantified in practice – but has not been successfully addressed to date through research or policy.

National confidential enquiry findings (NCEPOD 2012) national audit data (NCCA 2015) as well as information form regulatory (NMC 2017) and judicial hearings (Havers 2015) all demonstrate harm to patients related to DNACPR forms in practice.

The 2012 National Confidential Enquiry resulted in a report called "Time to Intervene". This structured review of 842 cases in English hospitals in which CPR was attempted described widespread confusion regarding the concept of DNACPR. This confusion was found to have caused the misuse of DNACPR forms. Case studies within the report illustrate the harm suffered by patients. Broadly there were two categories of harm identified.

3. When a patient is denied a dignified death, because an inappropriate or futile CPR attempt is made.

4. Death because of a failure to attempt CPR when it should have been attempted, as it would have been both appropriate and likely to be successful.

Two high profile cases, one judicial and one regulatory, demonstrate that despite the initial publication of "Time to Intervene" and the subsequent issuance of national guidance (RCN, BMA, RC(UK) 2014) to address the problem identified – avoidable harm continues to occur.

B6. What are the study's main objectives and expected outcomes?

The specific outcomes in addition to a thesis prepared in completion of the Clinical Doctorate in Nursing will be the publications referred to above and a revised implementation guide for the national guidance on decisions related to CPR.

The main objective is to prevent harm by informing future versions of policy and practice guidance related to DNACPR. Specifically, by increasing literacy with the concept of DNACPR through publication, education and the

informing of policy. It is intended that the misuse of DNACPR and resultant harm (and risk of harm) will be decreased.

B7. Does this project involve fieldwork? (see definition) **If your project involves fieldwork you must complete a GUEP Fieldwork Risk Assessment Form**	**Yes** ☐ **No** X

B8. Please summarise the potential ethical issues and how they will be addressed:

There are two main ethical considerations, and these relate to the use of secondary data for the first qualitative stage and the impacts on participants who participate in the second, quantitative stage of the research.

The first of these considerations is important to manage as the transcripts from case hearings which are the secondary data source, while published by the NMC in the public domain in the public interest, contain personal identifiers – name, NMC personal identification number (PIN) and details of the individual's workplace.

Such information is not required for the purposes of the proposed study and so redacted copies of the hearing transcripts will be used. Each case will be allocated a case index number and the cross-case analysis results, not the full redacted transcripts themselves will be published in the study. For completeness a record of the link between the full redacted transcripts and the indexed case list will be held securely and encrypted in the researchers London office. While all the information is freely available online in the public interest these measures serve to manage any potential ethical issue with using the data for the purpose for which it was published – the avoidance of future harm. In addition, the NMC will be notified and supplied with information about the study. Appendix 1 is a draft letter to be sent to the NMC once GUEP approval is secured, Appendix 2 is the participant information sheet which will accompany that letter.

The second consideration is related to questionnaire participants, the emotive nature of the subject matter and the giving of their time. Participants who complete the questionnaire may be distressed as a result of completing the questionnaire and reflecting on personal/professional experiences of DNACPR. Likewise depending on the results of cross-case analysis the vignette in the questionnaire may be distressing – as could the process of being asked to make decisions, even hypothetical, related to it. This will be managed in both the participant information sheet (Appendix 2) and using a self-care statement and guide. Consent for participation in, and ongoing use of questionnaire data, will be gained electronically on the landing page of the questionnaire website.

With respect to accessing the population and managing the burden of participation on their time a minimum of communication will be used. The population are members of an open access professional forum where all

members can share information and message each other – while retaining full control of the types and frequencies of communication they receive. It is proposed that the communication to recruit to questionnaire participation has three steps, each with an option to prevent further communication mitigating any potential for invasiveness or coercion.

1. Post (online) to the population forum with study information and a link to the questionnaire website for consent and completion of survey. This post will have an opt out automatically preventing receipt of future communications form the principal researcher.
2. First reminder, re-sending the above, again with an opt out.
3. Final reminder, no opt out required.

Any forum member who when joining the forum opted out of all communication related to research will not receive any of the above communication.

B9. Is further scrutiny required at a later date (e.g. where the research design is emergent)?	Yes X No
If YES please provide details When the draft data collection tool (questionnaire) is built it will be submitted to the panel before being administered.	
B10. Will external contractor be involved (e.g. transcription services, interpreters, fieldworkers)?	Yes ☐ No X
If YES comment on their compliance with ethical requirements: Click here to enter text	
B11. Has this proposal been subject to any external ethical review process?	Yes ☐ No X
If YES please provide details: Click here to enter text	

SECTION B: Project details

SECTION C: Research involving human participants

C1. Does your research involve human participants? If **YES** please answer the following questions. If **NO** proceed to C6.	**Yes** Ⅹ **No** ☐
C2. Please provide details of the intended participants: **Who?** Registered nurses who are members of the Royal College of Nursing Older Peoples Forum **How many?** 350 **Identification and recruitment:** The survey will be sent to all members via the forums open access online portal (n = 12,500) and when 350 online surveys have been completed the questionnaire will close, if that occurs before the closure date specified. While the online post to recruit participants to complete the questionnaire will be available to all forum members, once 350 surveys are complete the questionnaire will automatically close. This will be explained clearly on the recruitment and consent landing page.	
C3. Does the proposed research involve vulnerable groups? e.g. children under 18, people with learning or communication difficulties, patients, people in custody, people engaged in illegal activities such as drug taking.	**Yes** ☐ **No** Ⅹ
If **YES** please provide details: Click here to enter text	
C4. Please give details of procedures for informed consent (including information provided and methods of documenting initial and continuing consent) – consent forms must be attached to the application. The consent form will be electronic and embedded in the landing page of the questionnaire website. The information sheet content will be available on the same page (Appendix 2)	
C5. Please detail the measures that will be taken to ensure confidentiality, privacy and data protection: The secondary and primary data that will be gathered will be encrypted and stored in password protected folders, on a password protect and encrypted computer within a secure office. No data will be sent or received by e-mail or post. Questionnaire data will be provided through an anonymous Qualtrics online platform.	
C6. Please detail the methods of data collection: The qualitative data will be downloaded directly from the NMC website into a secure folder and be redacted. The un-redacted data will then be deleted, and the redacted data imported to NVIVO.	

The quantitative data will be gathered via a secure online questionnaire and exported directly to SPSS for analysis.

C7. Please detail the methods of data analysis and data storage (see Guidance on Research Data):

The qualitative data will be subjected to a cross-case analysis supported by NVIVO.
The statistical analysis will be descriptive and inferential – but cannot be detailed specifically here as the data collection tool will not be built until the end of year one. As with all the information previously described this data will be held on a password protected, encrypted computer in the researchers London office.

C8: How will the results from this study (including feedback to participants) be disseminated?

In addition to a thesis and two professional publications (See section B4) it is intended to submit an abstract for plenary sessions at the Royal College Conferences of the RCN and RCA in 2020. There will also be two direct mechanisms to feedback to participants. Firstly, participants will have the option to leave an e-mail address to receive their own electronic copy of the thesis and research publications. Secondly for those who prefer not to leave contact details they will be informed that the publications will be made available on the study website.

SECTION E: Data protection, copyright and other considerations

E1. Does the proposed research involve accessing records of personal or confidential information?	**Yes X No**
If YES please give details: As previously noted the transcripts of NMC hearings which it is proposed to subject to cross-case analysis contain personal information. While this information is already in the public domain the personal information is not required for the study – and so redacted copies will be used, not originals. Personal information to be redacted from each transcript includes name, NMC PIN number and place of work.	
E2. Does the proposed research involve the recording of participants through the use of audio-visual methods?	**Yes ☐ No X**
If YES please give details: Click here to enter text	
E3. Does the proposed research involve the remote acquisition of data from or about human participants using the internet and its associated technologies	**Yes X No ☐**
If YES please give details: The quantitative data collection tool will be a survey. The questionnaire invitation will be electronic and the questionnaire will be self-administered by participants online via a Qualtrics powered survey. https://www.qualtrics.com/research-core/	
E4. Does the proposed research involve accessing potentially sensitive data through third parties?	**Yes X No**

If **YES** please give details:		
The secondary data will be accessed via the NMC website. This data is freely available in an un-redacted form but will be redacted for the purposes of data analysis.		
E5. Does the proposed research involve reproducing <u>copyrighted work</u> in published form (other than brief citation)?	**Yes** ☐	**No** X
If **YES** please give details: Click here to enter text		
E6. Does the proposed work involve activities which could temporarily or permanently damage or disturb the environment, or archaeological remains and artefacts?	**Yes** ☐	**No** X
If **YES** please give details: Click here to enter text		
E7. Does the proposed work involve a potential conflict of interest or raise ethical issues regarding the source of funding or where publication of research data may be restricted?	**Yes** ☐	**No** X
If **YES** please give details: Click here to enter text		

By signing below (digital signatures accepted), you certify that the information provided is true and correct to the best of your knowledge. Please return your form in **Word** to guep@stir.ac.uk

RESEARCH POSTGRADUATES

Applicant's signature: **Date: 10/11/2017**

Supervisor's signature: **Date: 12/12/2017**

Appendix 8: Paper Submitted for Publication to *"Resuscitation"*

A Mixed Methods Exploration of 'Do not Attempt Cardiopulmonary Resuscitation' (DNACPR) in Nursing Practice.

Background: Decisions relating to CPR have been described as ethically complex. Previous literature has highlighted the potential benefits but also harms associated with 'do not attempt cardiopulmonary resuscitation' (DNACPR), although typically focusing on medical practitioners. **Objective**: This study explored understandings of DNACPR among nurses caring for older people. **Methods:** A reflexive thematic analysis of regulatory hearing transcripts (n=30) informed the construction of an online questionnaire completed by 2.8% (n = 352) of the Royal College of Nursing (UK) Older People's Nursing Forum. **Results**: Nurses were found to be willing to knowingly administer futile CPR (37.5%, n = 132), but also willing to withhold CPR in the absence of a valid DNACPR form. Life support training was the most significant predictor of responses being in line with UK guidance on decisions related to CPR (p <0.001). Nurses with Advanced Life Support (ALS) were eleven times more likely to understand that DNACPR relates to CPR only (p <0.001). Nurses from the Nursing Home Sector were found to be disproportionately subject to DNACPR related regulatory action. **Conclusion:** ALS training may be the best intervention to prevent harm associated with futile CPR or overinterpretation of DNACPR.

Introduction

The COVID19 pandemic has seen DNACPR attract renewed attention due to the potential for it to cause harm to older people[1]. With respect to harm this can refer to either harm caused by the administering of futile CPR, or the withholding of treatments other than CPR because of overinterpretation of a DNACPR form. As the COVID19 pandemic evolved several statements were issued by professional regulators, for example the General Medical Council (GMC) in the United Kingdom, clarifying the role of DNACPR in holistic advanced care planning and cautioning against blanket policy approaches[2]. Prior to COVID19 there have been high profile cases of DNACPR being challenged in court as inappropriate[3].

The potential for DNACPR to cause harm, or be discriminatory, has in addition been the subject of confidential enquiry and review in the past[4]. Given the profile of the subject interprofessionally it might be expected that its use in practice is understood, that in turn leading to a reliable net benefit for people.

The aim of this study was to explore the understanding of nurses working in older person's care related to DNACPR in the UK. The specific research objectives were to: 1) explore nurse understanding of DNACPR and 2) determine how these understandings might impact nursing care and risk of harm to people. A study website is available at dnacpr-study.com where the study questionnaire and data are available.

Methods

There were two samples in the study. The first was a purposive sample of NMC hearing transcripts which related to DNACPR, the second a convenience sample of nurses caring for older people (*i.e.,* a qualitative and quantitative phase respectively). The purposive sample included all regulatory hearing transcripts (n = 30) published on the NMC website which related to DNACPR and occurred after 2007 (2007 being the date of the last major revision to UK national guidelines on decisions relating to CPR[5]). The hearing transcripts were available open source from the NMC website and were downloaded and redacted. These data were already published in the public domain, but the name, personal identification number (PIN) and place of work of the nurses were not required for this study.

The convenience sample for the quantitative phase was recruited by distributing an invitation to participate to members of the Royal College of Nursing Older People's Nursing Forum, including study information, consent, and online questionnaire link. Recruitment closed when 360 responses were recorded – a calculation made using the WHO sample size calculator[6] based on the total membership of the Forum. The questionnaire responses were collected in Survey Monkey and exported from there to SPSS for analysis. After cleaning, 352 valid completed responses were available for analysis.

The qualitative analysis of the transcripts was carried out using reflexive thematic analysis[7]. This approach was suited to the rich, previously unresearched text data. The approach was also amenable to a recursive approach, allowing the researcher to move back-and-forth

along the six stages of analysis checking-in with their position in relation to the data - ensuring the themes were not generated from existing beliefs or perspectives. The process included six stages: familiarisation with the data; coding; searching for themes; reviewing themes; naming and defining themes; and producing a report. To enhance the trustworthiness of analysis, a second researcher coded 10% of the data to help enure coherence with the study design and aims. A final thematic map was produced as an output of the analysis and is below at Fig 1.
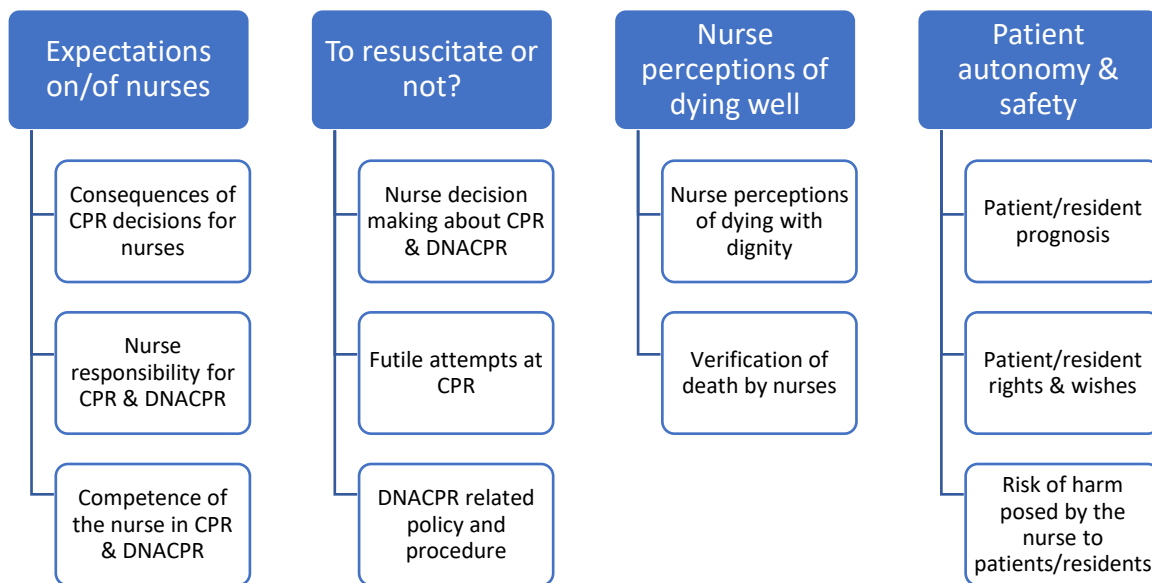
Fig 1 Thematic Map of Qualitative Data

The scheme of statistical analysis was informed by the thematic map and was conducted in two phases in SPSS. Firstly, the Chi Square statistic was used to determine if relationships existed between any nurse variables and responses. When significant relationships where identified these were built into two logistic regressions to determine which nurse variables were independent predictors of responses associated with lower risk of harm.

Results

Descriptives

The nurses in both samples were experienced, with the majority having practiced for over a decade (62%, n =218). Male nurses were disproportionately represented in both samples. Compared with the 11% of the UK nursing workforce who are male, 22.4% of questionnaire respondents (n = 79) were male. The 352 questionnaire respondents cared for older people in nursing homes (59.6%, n = 210), the community (including palliative care) (21.9%, n = 77) and hospitals (18.5%, n = 65).

Qualitative phase: Reflexive Thematic Analysis

Four overarching themes emerged from the analysis of the NMC transcripts: "expectations of nurses", "to resuscitate or not?", "nurse perceptions of dying well" and "patient / resident autonomy and safety".

Theme 1: Expectations of nurses: This theme saw nurses and others describing what they felt was of expected of them if a patient or resident had a cardiac arrest. A varied understanding of nursing roles and responsibility often had adverse consequences for the nurse. This included nurses who lost their jobs or decided not to nurse again. What nurses themselves believed about what they were responsible for - and what others thought the nurse was responsible for were in conflict. The most obvious examples of the conflict above were the views expressed by nurses and others about what was done, and what should have been done in the situations they found themselves in *e.g. "The panel was satisfied, from the transcript of the second 999 call, that Mrs X knew that there was no paperwork to confirm the DNAR status and, accordingly, that she was under a duty to undertake CPR".* Nurses believed that the presence or absence of a DNACPR form in circumstances when they decided not to perform CPR was a moot point, because they were describing situations when they were the only healthcare professional present – therefore the decision in their view was one for them to make.

Theme 2: To resuscitate or not?: Nurses set out a range of factors that influenced their decisions related to CPR including their peers, *" she told me to let him die peacefully and not to start CPR"*, their clinical assessments, "*CPR is performed to give the patient a chance of*

survival. My clinical observations at the time informed me that the resident was discovered dead in his room so there would be no chance of survival", and, clinical guidelines, "*The BMA also recommends that futile attempts at resuscitation should be curtailed (for example on a body that is cold). I knew that CPR would be unsuccessful and unquestionably inappropriate*." These examples demonstrated how a decision that was required to be made immediately was viewed retrospectively. In retrospect the nurses were explaining what types of knowledge they drew on, and why this meant they were confident in their decisions.

Futility was a repeating theme, for example "*Ms X noted that during the investigation you told the Home that you thought that the patient had been dead for too long and that there was no possibility they would survive*." and "*In your statement to the coroner you said that you considered at the time that CPR was extremely unlikely to be successful*". The recurring theme behind the many explanations from the nurses as to why they did not do CPR was that they believed it would not have been successful. Futility, in the descriptions provided by the nurses of the circumstances meant they believed that CPR would have been disrespectful, harmful, and ultimately the wrong thing to do.

Theme 3: Nurse perceptions of dying well. The intentions nurses had to ensure that their patients or residents died well emerged from the data. These intentions were expressed through perspectives on dignity in death and allowing the resident to die peacefully out of respect for them. The importance of a dignified death was expressed by some nurses as being their most important consideration – over and above policy, care plans, records or DNACPR forms "*As an experienced nurse administrating CPR in both incidents, where the chances of success were negligible would have denied both residents the opportunity of dignified death*" and "*Performing CPR where the chances of success were negligible would have an unacceptable probability of brain damage even if successful, something I would find very hard to live with and would not want for my own family…*"

These extracts were ultimately about how the nurses believed they could best discharge their caring responsibility for their patient or resident. An interpretation that might reasonably be offered is that nurses accepted that allowing patients to die was the right thing to do and resuscitation therefore, the wrong thing to do.

Theme 4: Patient safety and autonomy. In addition to what the nurses thought was the right thing to do, they were found to also have regard for what the patient or resident would have wanted. This was sometimes based on an interpretation of patient rights in general. But in other cases the nurses seemed to rely on their personal knowledge of residents to inform an assessment of what was in the person's best interest *e.g.* "*During the investigation, you said that you considered that carrying out CPR on the patient would have been disrespectful of her wishes. You also stated that you saw the spirit of the patient looking down on you saying, 'don't you dare'*".

On the issue of rights and wishes, there were examples of findings that can be interpreted as meaning that patient wishes should not unduly impact nurse's action in the context of cardiac arrent situations. "*Mr X submitted that the panel may wish to consider whether your decision not to carry out CPR on the patient was inappropriately influenced by your beliefs about the patient's wishes*".

It is clear from the above extract that there was regard to patient wishes and to patient rights, including the right to die. But what it also demonstrated was variation between what patient wishes meant to the nurse who dealt with the cardiac arrests and others, and the influence others believed patient wishes should have had on the decision related to CPR.

Questionnaire Analysis

Sample demographics

The questionnaire asked about the nurses general, specialist and life support education and training. While just under half had no specialist qualification, over a third (33.8 %, n = 119) had either a specialist qualification in the care of older people or palliative care. 68.2% (n = 240) were educated at BSc level, 19.3% (n = 68) at MSc level and the remaining 12.5% at or below Diploma level. The most common level of life support training among questionnaire respondents was Basic (BLS) at 59% (n= 208). The next most common was Intermediate (ILS) at 22.7% (n=80) and Advanced (ALS) at 15.6% (n=55). 2.6% (n=9) of respondents had no life support training. Of the nurses working in nursing homes only 13% were ALS trained compared with 31% of hospital nurses.

Understanding of DNACPR

63% (n = 222) of nurses responded that DNACPR is legally binding and 37.5% (n = 132) that they would knowingly perform futile CPR. Of the respondents, 46.9% (n = 165) replied that DNACPR made the subject ineligible for emergency or critical care. Using a Chi Square analysis, the nurse's life support training level and them having a specialist qualification were found to be most significantly related to these responses, Table 1 below.

Table 1 Summary of Relationships Between Nurse Variables and Question Responses

	Nurse Sex	Nurse Care Setting	Nurse Experience	Nurse Spec Qualifications	Nurse Education Level	Nurse Life Support Training
Is DNACPR legally binging?	P = 0.690	P = 0.079	P = 0.078	**P = <0.001**	**P = 0.025**	**P = <0.001**
Would you perform futile CPR?	P = 0.989	P = 0.070	P = 0.843	**P = <0.001**	P = 0.229	**P = <0.001**
Does DNACPR prevent AE&ICU care?	P = 0.603	**P = <0.001**	P = 0.214	**P = <0.001**	**P = 0.001**	**P = <0.001**

As the Chi Square does not indicate the direction of a relationship between variables, two logistic regression models were built adding the nurse variables in order of significance against risk or harm indicators related to a) futility and b) overinterpretation of DNACPR. The reference categories therefore being responses associated with a low risk of harm, a) that the nurse would not knowingly administer futile CPR and b) that DNACPR alone does not preclude emergency or critical care. It was found that having any specialist post graduate qualifications versus none (OR=1.48, 95% CI 1.21; 1.82; p <0.001) and level of life support training (OR=2.5, 95% CI 1.87; 3.54; p<0.001) were significant independent predictors of nurses not being willing to performing futile CPR, Table 2 below.

Table 2 Logistic Regression – Futile CPR

	P-Value	Odds Ratio	95% C.I.for Odd Ratio	
			Lower	Upper
Specialist Qualifications	**<0.001**	1.484	1.209	1.822
Life Support Training	**<0.001**	2.569	1.866	3.536
Practice Setting	0.835	0.946	0.562	1.592
Highest Education	0.536	0.888	0.610	1.293
Years Qualified	0.502	0.682	0.223	2.084
Constant	0.166	0.167		

The odds ratios (ORs) of >1 can be interpreted as an increased odds of nurses responding that they would not perform futile CPR. For every unit increase in life support training (i.e., from none to BLS to ILS to ALS) the likelihood of the respondent not performing futile CPR increases by 2.5, meaning those with ALS were found to be 7.5 times more likely to withhold futile CPR.

It was found that having any specialist qualification versus none (OR = 1.55, 95% CI 1.25; 1.92; p<0.001), Life Support Training level (OR=3.77; 95% CI 2.54; 5.60; p<0.001) and practice in a setting other than nursing homes (OR=2.37; 95% CI 1.40; 4.03; p=0.001) were significant predictors of nurses responding that it was incorrect to consider DNACPR alone as preventing emergency or critical care. Nurses with advanced life support training were 11.1 times more likely to believe that DNACPR does not prevent emergency or critical care, Table 3 below.

Table 3. Logistic Regression – Overinterpretation of DNACPR

	P Value	Odds Ratio	95% C.I.for EXP(B)	
			Lower	Upper
Specialist Qualifications	**<0.001**	1.546	1.248	1.916
Life Support Training	**<0.001**	3.769	2.537	5.601
Practice Setting	**0.001**	2.371	1.396	4.026
Highest Education	0.496	1.149	0.770	1.716
Years Qualified	0.814	1.149	0.361	3.651
Constant	0.001	0.010		

Among the reasons for using decision supports in healthcare are to improve clinical performance and patient experience[8]. Nurses were asked to identify if they would start CPR or not in four resident scenarios (available on the study website) each of which included information on DNACPR status. The purpose being to determine the degree of consistency or variance in decisions making – not to determine a "correct" clinical response per se. The nurse responses were found to be varied, and while each nurse was presented the same scenarios there was a near 50:50 split in professional opinion with respect to resuscitation, Table 4 below.

Table 4. Responses to Vignettes		
Scenario	**"Correct" Response**	**% Respondents who would Perform CPR**
Scenario 1	Provide Palliative Care	42%
Scenario 2	Provide Palliative Care	45%
Scenario 3	Start CPR and call for help	42%
Scenario 4	Start CPR and call for help	55%

Discussion

The study had several limitations to consider. The samples were small considering the size of the nursing profession in the UK. Given the design, DNACPR in practice was studied in retrospect and hypothetically (regulatory hearing transcripts and questionnaire). The questionnaire was self-administered online without the time and other pressures of decision making in practice. The strengths however include the first analysis of the real-world cases to which the hearing transcripts related and exploration of emergent themes using a sample of nurses from the most impacted speciality, care of the elderly.

Across all statistics advanced life support training was the most significant independent predictor of nurses understanding the legal standing and purpose of DNACPR. Of the nurses who worked in nursing homes only 13% had advanced life support training even though they were found to be most likely to work alone.

The nurses in both samples were experienced nurses, with the majority (62%, n = 218) having more than a decade of experience. The longer the nurse was qualified, the less likely they were found to have advanced life support training. Over half of the nurses had a

specialist post graduate qualification, most frequently older person's nursing (19.6%) and Palliative Care (14.2%). Only 15 % of the nurses overall had advanced life support training, rising to 31% of nurses working in hospitals.

There is a significant volume of literature on CPR itself, and on DNACPR in general. The literature specific to nurse's understanding of DNACPR however, and the impact of those understandings on residents is limited. There have been five studies specific to nursing and specific to understanding of DNACPR [9,10,11,12,13]. The findings from all these studies can be considered in three main categories which are responsibility, understanding and influencers. The findings regarding responsibility were mixed with the studies finding in two instances that most nurses believed doctors were solely responsible for decisions related to CPR. On the other hand, two studies found nurses believed that patients and families should take on this responsibility.

Concepts of responsibility and understanding related to DNACPR are less evident in the medical than nursing literature, the profession having a well-established position as lead clinicians. The literature relating to doctors and their interaction with DNACPR does however identify anxiety among clinicians, including anxiety related to overinterpretation[14] and – from the perspective of the doctor, the impact of this on nurse decision making.[15]

Implications for Practice

Ethical questions are raised by some of the findings. Questions that unsurprisingly relate to the right to live and right to die, but also about ethics and scope of practice in nursing generally. It has been reported in the literature that CPR which fails is not considered to be futile by some – even if before CPR was commenced there was certainty the patient would not survive. Such CPR attempts have been described as a form of contemporary death ritual[16]. This may be connected to the finding that from a regulatory perspective, regardless of the likelihood of success, the duty of the nurse was interpreted as being to always resuscitate.

Futility itself has been the subject of research and policy. The Society of Critical Care Medicine Ethics Committee issued a policy statement to the effect that interventions unlikely to lead to survival are inappropriate[17]. This leads to questions about the nature of survival. Surviving for how long? With what quality of life? Where?

When considered in the light of the literature on ethics and futility the findings point to the nurses experiencing ethical dilemmas. An ethical dilemma in this sense has been described as an individual care situation that challenges a nurse's options to act on the basis of moral ground[18]. Nurse level of life support training was found to be the most significant independent predictor of nurse responses indicative of an ability to navigate these dilemmas in practice, and so potentially minimise risk of harm. That is harm either due to inappropriate CPR, or inappropriate failure to resuscitate.

Nonmaleficence in nursing is often considered in the context of assisted dying[19] which in the United Kingdom is unlawful. It is perhaps the case that the passive non-maleficent act of withholding futile CPR is conflated with an active role in hastening the end of life.

In the nursing literature on DNACPR specifically in long term residential care, older age is the only patient variable associated with an increased likelihood of a do not resuscitate status. Findings related to a continued tendency to overinterpret DNACPR, and it being a matter of policy in residential care, point to a lack of insight into the lives lived by older people. Nurses are well placed to tackle this problem and help ensure conversations are focused on lives being lived well in the first instance, but also consider future care. A dignified death is what nurses themselves would hope for. A study of nurse preference found residential care was the least preferred option for their own death, with home being the most preferred place to die[20].

Conclusion

In answer to research question one it was concluded that nurse understanding of DNACPR is poor and this may be especially so in nursing homes. In answer to research question two, it was concluded that a continuing risk of harm exists associated with DNACPR. Nurses working in nursing homes were found to be most likely to encounter complex decisions related to CPR, but least well trained to navigate these.

Advanced life support training was found to be an independent predictor of nurses understanding DNACPR well. But those most likely to rely on such understanding were found least likely to be trained. Consideration should be given to providing enhanced post graduate education to the nursing home workforce as a policy priority. The continued use of DNACPR is being debated with a view to it being replaced by more holistic approaches, such as the ReSPECT process[21]. Interdisciplinary consideration should be given to the future operation of DNACPR in residential care in collaboration with older people and their advocates.

References

[1] Bloomer A. Covid-19: Older people pressured into signing DNA-CPR forms. Geriatric Med J. 2020 4: Online Version(https://www.gmjournal.co.uk/covid-19-older-and-vulnerable-people-pressurised-into-signing-dna-cpr-forms)

[2] Statement on advance care planning during the COVID-19 pandemic, including do not attempt cardiopulmonary resuscitation (DNACPR). London: GMC; 2020.

[3] Havers P, QC. The Queen on the Application of David Tracey -v- Cambridge University Hospitals NHS Foundation Trust and Others. 2014.

[4] MENCAP. Death by Indifference: 74 Deaths and Counting. London: MENCAP; 2012.

[5] RCN, BMA, RCUK. Decisions Relating to Cardiopulmonary Resuscitation. 3rd ed. London: RCN; 2014.

[6] Lwanga, S.K and Lemeshow S. Sample size determination in health studies: a practical manual. Geneva: WHO; 1991.

[7] Braun, V. and Clarke, V., 2019. Reflecting on reflexive thematic analysis. Qualitative research in sport, exercise and health, 2019,11:589-97.

[8] Yang Q, Zimmerman J, Steinfeld A. Review of medical decision support tools: emerging opportunity for interaction design. IASDR 2015 Interplay Proceedings. 2015

[9] Godkin MD, Toth EL. Cardiopulmonary resuscitation decision making in long-term care: a role for the nurse? J Adv Nurs. 1994;19:97-104.

[10] Manias E. Australian nurses' experiences and attitudes in the 'do not resuscitate' decision. Res Nurs Health. 1998 10;21:429-41.

[11] Giles H, Moule P. 'Do not attempt resuscitation' decision-making: a study exploring the attitudes and experiences of nurses. Nurs Crit Care. 2004, 9:115-22.

[12] Park Y, Kim J, Kim K. Changes in how ICU nurses perceive the DNR decision and their nursing activity after implementing it. Nurs Ethics. 2011; 11:802-13.

[13] Mogadasian S, Abdollahzadeh F, Rahmani A, Ferguson C, Pakanzad F, Pakpour V, et al. The Attitude of Iranian Nurses About Do Not Resuscitate Orders. Ind J Pall Cre. 2014,20:21-5.

[14] Moffat S, Skinner J, Fritz Z. Does resuscitation status affect decision making in a deteriorating patient? Results from a randomised vignette study. J Eval Clin Pract. 2016;2:921-7.

[15] Fritz Z, Fuld JP. Development of the Universal Form of Treatment Options (UFTO) as an alternative to Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) orders: a cross-disciplinary approach. J Eval Clin Pract. 2015;21:109-17

[16] Gordon M. Rituals in death and dying modern medical technologies enter the fray. Rambam Maimonides Med J. 2015 Jan 29; 6: e0007.

[17] Kon AA, Shepard EK, Sederstrom NO, Swoboda SM, Marshall MF, Birriel B, et al. Defining futile and potentially inappropriate interventions: A policy statement from the Society of Critical Care Medicine Ethics Committee. Crit Care Med. 2016 Sep;44:1769-74.

[18] Haahr A, Norlyk A, Martinsen B, Dreyer P. Nurses experiences of ethical dilemmas: a review. Nurs Ethics. 2020;27:258-72.

[19] Wilson M, Wilson M, Edwards S, Cusack L, Wiechula R. Role of attitude in nurses' responses to requests for assisted dying. Nurs Ethics. 2021;28:670-86.

[20] Shepherd J, Waller A, Sanson-Fisher R, Clark K, Ball J. Where would acute care nurses prefer to receive end-of-life care? A cross-sectional questionnaire. Int J Nurs Stud. 2020;109:103683.

[21] Hawkes CA, Fritz Z, Deas G, Ahmedzai SH, Richardson A, Pitcher D, et al. Development of the Recommended Summary Plan for Emergency Care and Treatment (ReSPECT). Resuscitation. 2020; 148:98-107