Registered Nurses' use of a National Early Warning Score: An interpretative hermeneutic phenomenological study

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Abstract

Background: The National Early Warning Score (NEWS) was introduced in the U.K. to address the patient safety risk of failing to recognise and act on patient deterioration promptly. However, patients still deteriorate unnoticed. Registered Nurses are responsible for patient monitoring and are the main users of NEWS.

Aim: To explore Registered Nurses' experiences and perceptions of using NEWS in the U.K. as part of the recognition and management of acute adult patient deterioration.

Methodology: Sixteen Registered Nurses from a U.K. NHS Trust were interviewed using an interpretative hermeneutic phenomenological approach, guided by Gadamerian philosophy. In-depth interviews formed part of a Gadamerian spiral, interpreted to gain new understanding through a fusion of horizons to reveal the story of using NEWS in clinical practice and the meaning for nurses.

Findings: The story revealed three pinch points of risk in clinical practice: delegation of vital sign monitoring to healthcare assistants with uncertainty and delayed escalation; over-reliance on NEWS and a culture-based deference to expertise by Junior Nurses; and Senior Nurses' potential over-confidence in self-managing deteriorating patients. Workplace culture surrounding NEWS revealed constant compromises and lack of learning opportunities with a potential consequence of future skills gaps in the nursing workforce.

Conclusions: When using NEWS, failure to recognise the risks associated with the three pinch points threatens patient safety. Wrong decisions at these points may lead to missed chances in preventing deterioration. Incorrect judgments may lead to unrecognised patient deterioration or inappropriate management leading to preventable adverse events.

Recommendations for practice:
The nursing profession and health service need to:

- address education gaps in the registered/unregistered nursing workforce relating to the recognition and management of deteriorating patients, to ensure safe use of NEWS;
- foster a culture that supports, values and develops nurses' clinical judgment to enhance patient safety.

Acknowledgements

I dedicate this thesis to my mum, Monica Snook, who started this journey with me, encouraged and supported me, a student, mother, and wife, to seek balance. Whilst she could not be here to see the end of this journey, she has been with me at every step, her presence on each and every page.

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And finally, thank you to the nurses that participated in this study, shared their stories and experiences to make this research real.

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List of Abbreviations

Accident and Emergency (A&E)
Allied Health Professionals (AHPs)
Blood Pressure (BP)
Commissioning for Quality and Innovation (CQUIN)
Critical Appraisal Skills Programme (CASP)
Critical Care Outreach Team (CCOT)
Department of Health (DH)
Early Warning Score (EWS)
Glasgow Coma Score (GCS)
Health Education England (HEE)
HealthCare Safety Investigation Branch (HSIB)
High Reliability Organisation (HRO)
Intensive Care Unit (ICU)
Intensive Therapy Unit (ITU)
International Council of Nurses (ICN)
Medical Emergency Team (MET)
National Confidential Enquiry into Patient Outcome and Death (NCEPOD)
National Early Warning Score (NEWS)
National Health Service (NHS)
National Institute of Clinical Excellence (NICE)
National Outreach Forum (NoRF)
Rapid Response System (RRS)
Rapid Response Team (RRT)
Respiratory Rate (RR)
Resuscitation (Resus)
Royal College of Nursing (RCN)
Royal College of Physicians (RCP)
Situation, Background, Assessment, Recommendation (SBAR)
Track and Trigger System (TTS)
World Health Organisation (WHO)

Chapter 1 Introduction

Vital sign monitoring is a fundamental component of nursing care and an essential part of monitoring hospitalised patients. Nurses will monitor and record thousands of vital signs in their career. These will include respiratory rate, oxygen saturation, blood pressure, pulse and temperature and are recognised as one of the simplest and important information sources on a patient (Kellett and Sebat, 2017). Vital signs play an important role in determining if a patient is deteriorating and therefore should be consistently and accurately monitored.

Failure to recognise patient deterioration and act in a timely manner is a significant patient safety risk and may lead to adverse patient outcomes including preventable death. A prominent study in the United Kingdom (U.K.) in 2012 (Hogan *et al.*, 2012), that formed the basis of a number of improvement initiatives, reported that 5.2% of hospital deaths have a 50% or greater chance of being preventable. This represents 11,859 adult preventable deaths in NHS (U.K. National Health Service) acute hospitals each year. Of those preventable deaths, 31% were attributed to poor monitoring. Nurses play a central role in this important aspect of healthcare practice, undertaking the bulk of patient monitoring.

Since this study (Hogan *et al.,* 2012), subsequent reports have continued to identify problems in recognition of and response to deterioration (NHS Improvement, 2016), citing sub-optimal care (Healthcare Safety Investigation Branch, 2019). Globally, there have been numerous improvement initiatives introduced to combat this phenomenon to decrease adverse events and improve patient outcomes. One proposed solution were Early Warning Scores (EWS) as a detection and response tool for deterioration. EWS, based on clinical prediction models, use vital signs to monitor and identify the likelihood of deterioration. EWS trigger a warning when a patient shows signs of deterioration and have been widely adopted worldwide (Esmaeilzadeh *et al.,* 2022).

In the U.K. the Royal College of Physicians (RCP, 2012) recognised the variety of different EWS tools being utilised in the NHS and introduced the National Early Warning Score (NEWS) in an attempt to standardise systems used to assess acute-illness severity. NEWS was modified with NEWS2 released in 2018 and mandated for use in the NHS. Whilst existing research supports NEWS in its ability to predict both patient mortality and admission to ICU (Smith *et al.*, 2013; Corfield *et al.*, 2014;

Abbot *et al.* 2015; Silcock *et al.*, 2015), its use in clinical practice has not greatly improved early detection and recognition of patient deterioration (NHS England, 2018). Little is known about the reasons for this phenomenon, justifying a focus in this research study on exploring nurses' experiences and perceptions of the use of NEWS.

This chapter sets the context of the current situation in the U.K. with regards to the deteriorating patient phenomenon and starts by exploring patient safety in the U.K. A historical narrative of policy and guidance development over the past 20 years will be provided before focusing upon the deteriorating patient phenomenon. Recommendations made to address risks to patient safety as a result of failure to recognise and manage deterioration will be identified and critically appraised. Next the chapter will focus upon the National Early Warning Score, the 'track and trigger' system introduced into the U.K. to improve identification, assessment, and management of unwell patients in the acute hospital setting (RCP, 2012). The final part of this chapter will consider the impact of the Covid-19 pandemic on the use of NEWS to detect deterioration.

1.1 Patient safety

Undeniably, recognising deterioration remains one of the predominant areas of patient safety concern in the NHS. Since Berwick's review, following the mid-Staffordshire enquiry (Francis, 2013), patient safety has increasingly been in the public eye. A less public focus on patient safety can be dated back to the 1990s, attributed to the work of Reason (1990), followed by studies on clinical error (Brennan *et al.,* 1991) and a move for quality improvement (Donaldson *et al.,* 2000). Prior to this focus upon patient safety in the 1990s, there was an acceptance of avoidable harm as a consequence of healthcare by health professionals (Vincent, 2010, p. 3).

One important development in the evolution of patient safety in England was the creation of the National Patient Safety Agency (NPSA) in 2001. Established to coordinate reporting and learning from patient safety mistakes and problems within the NHS (National Patient Safety Agency, 2005), via the National Reporting and Learning System (NRLS, 2007), the NPSA played a key role in bringing patient safety to a national level, offering guidance to the NHS to highlight risks alongside recommendations for action. In 2007, the NPSA published a notable report

Recognising and responding appropriately to early signs of deterioration in hospitalised patients, identifying a high percentage (11%) of avoidable deaths associated with patient deterioration not being recognised or responded to within a timely manner (NPSA, 2007). The report highlighted the complexity of the underlying causes and made recommendations including the provision of a reflective checklist for NHS Trusts to review their systems and processes and consider implementation strategies (NPSA, 2007). Despite its acknowledged success, NHS efficiency savings meant the NPSA was abolished in 2012 under the Health and Social Care Act 2012 (Scapello, 2010) and responsibility for Patient Safety moved first to the NHS Commissioning Board and latterly to NHS England. Improvement in patient safety is a high priority for the NHS, through the creation of and adherence to evidence-based protocols with an aim to create a national patient safety culture (NHS England, 2019a). As a result, the NHS has seen multiple policy interventions aimed at improving the quality of care, some with more success than others.

In 2016, the Commission on Education and Training for Patient Safety (Health Education England, 2016b) published a patient safety report and toolkit with 12 recommendations for improving patient safety. In 2021, the Commission released an NHS wide patient safety syllabus (Spurgeon and Cross, 2021) based upon the 2016 report. Six years on from the original report, there is little evidence of adoption of either. Whilst the COVID-19 pandemic may be partly responsible for the lack of implementation of change, there has been little shift in the narrative away from policy and guidance production.

One notable shift in patient safety is increased public awareness and engagement. This change is mostly focused upon adverse events, which may be portrayed as negative but, in some instances have been turned into opportunities to initiate change. One clear example is sepsis. The U.K. Sepsis Trust was founded in 2012 with an underpinning vision to end preventable deaths from sepsis. The Sepsis Trust's inaugural, very public campaign utilised patient stories to gain momentum through social media platforms. The Sepsis Six clinical care bundle, developed by the Trust following the international Surviving Sepsis Campaign, was endorsed by the National Institute for Health and Care Excellence (NICE) with survival rates from sepsis growing from 70% in 2012 to 80% in 2019 (U.K. Sepsis Trust, 2022). Sepsis is one of multiple causes of adult patient deterioration. Heightened awareness has undoubtedly led to improved detection and outcomes for patients with sepsis; similar

public attention to other deterioration causes may also demonstrate a similar awareness.

Preventable deterioration falls within the realm of patient safety initiatives in the U.K. which have emerged from a wide set of influences, many derived from other sectors. Aviation, for example, is recognised as a safety critical industry, one in which safety is viewed with paramount importance, where the consequences of failure may lead to loss of life, serious injury, environmental damage or harm to plant or property (Wears, 2012). The aviation industry can share some of its lessons learnt with healthcare. Kapur *et al.* (2016). suggested that if the number of fatalities in healthcare was reflected in an airline, they would stop flying, however healthcare cannot just stop. Aviation has taken a systems-based approach to safety, so rather than apportioning blame for adverse events to individuals operating the equipment, systems and policies are designed to try to prevent risk materialising. As a result, there has been a focus in aviation on the role of latent risk factors and human factors. For example, Fitts (1947) was one of few researchers to consider safety aspects related to both the pilot and the plane and the dialogue between the two, rather than just focusing on them separately. This holds significant relevance with regards to this research study, which is not focused solely on the use of a tool (NEWS in this case) or solely on the humans using it (Registered Nurses) but exploring how NEWS is used by its main users, nurses. These findings will offer a greater understanding and knowledge of human factors through exploration of the factors influencing nurses' use of NEWS in the clinical area.

The exploration of human factors has featured highly within the patient safety literature over the past decade, with recognition of its origins in aviation and its application to healthcare focused on addressing error, communication, and teamwork (Catchpole, 2013). Catchpole *et al.* (2010, p180) define human factors as "enhancing clinical performance through an understanding of the effects of teamwork, tasks, equipment, workspace, culture and organisation on human behaviour and abilities and application of that knowledge in clinical settings". This widely utilised definition emerged from the Clinical Human Factors Group (2015) who referred to human factors as the "science of understanding human performance in a given system". There is a notable difference in the two definitions with the latter offering a reductionist, scientific view of human factors which fails to take account of the complexity of human beings, their behaviours and performance, reflecting human factors as a scientific discipline as proposed by the West of England

Academic Health Science Network (2023). One of the first considerations of human factors in healthcare was undertaken by Cooper *et al.* (1978) who reported the impact on complications of anaesthesia. Lucian Leape is widely recognised for his role in the early patient safety movement, highlighting the importance of the relationship between humans and systems, proposing that an understanding of human factors (ergonomics) held importance in helping to reduce medial errors and improve patient safety (Leape, 2004). Russ *et al.,* (2013) proposed that a number of misconceptions about human factors such as human factors focus on individuals, eliminating human error and teaching modification of behaviour have invertedly created missed opportunities for improvement. This Doctoral study, which offers a deeper understanding of the interaction between RNs and NEWS in the wider context of the healthcare team and system, employs the definition of human factors provided by Catchpole (2010), reflecting the complexity of individual factors.

Systems approaches to patient safety are frequently proposed in the NHS (Cross, 2018; NHS England, 2019). Systems approaches are predicated on the premise that well-designed systems prompt individuals toward desirable behaviour and restrain them from undesirable ones. One of the most frequently cited systems-based models of safety is the Swiss-Cheese model developed by James Reason (1995). Reason, a psychologist, proposed that workplace errors are rarely caused by isolated acts by individuals but reflect multiple failures within a system. Following analysis of large scale industrial and organisational accidents which he proposed were predictable, Reason theorised that one failure alone may not cause a negative outcome but when multiple failures all line up, errors or adverse events can result. He explained the complexities of systems failures by associating holes in Swiss cheese with active failures and latent conditions (Figure 1.1).

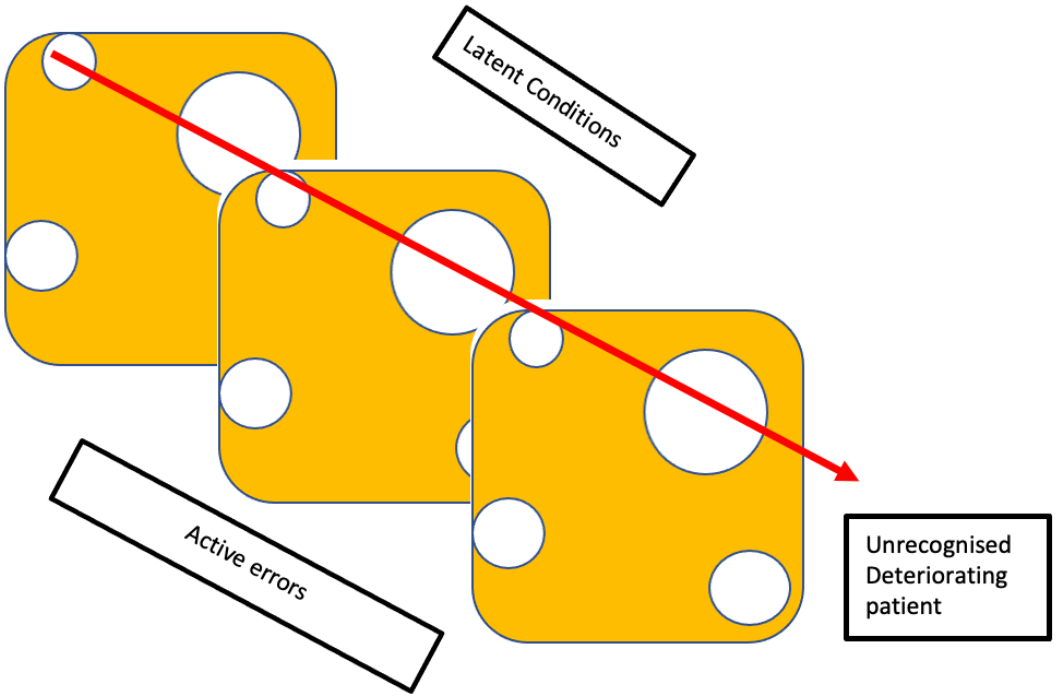


Figure 1.1 The Swiss Cheese model (Reason, 1995) applied to patient deterioration

Active failures are unsafe acts committed by the people in direct contact with the patient whereas latent conditions arise from decisions at leadership or management level that create conditions that potentially promote unsafe acts such as poor staffing, lack of training and lack of equipment. Each layer of cheese is a defence against something going wrong, the holes represent an understanding that no system is perfect so things will go wrong occasionally. Something (risky situation, action or failure to act) alone (i.e., slipping through one hole in the system) may not be a problem, but when the failures or risks follow a path through each of the holes this may become a major problem. Reason's model (1995) has made a major contribution to the understanding of patient safety incidents and acknowledges that no system involving humans is perfect. Failure of systems can be due to both people and systems. The model is later considered in relation to the findings of this study (see section 5.6).

Another similarity between the NHS and other industries is the development of guidelines and checklists (Thomassen *et al.*, 2011; Thomassen *et al.*, 2014; Wieringa *et al.*, 2021). In the foreword of the NEWS2 report (RCP, 2017) Sir Bruce Keough, the national director for NHS England, cites safety critical industries, such as air traffic control and naval air forces, making reference to learning from these

sectors and suggesting strength lies in the use of standardised tools. Checklists have featured highly among patient safety interventions, with such initiatives achieving success in other sectors. However, in healthcare there are continued questions as to the ability of checklists to change clinical practice which deals with humans rather than machines. The origin of the checklist comes primarily from the aviation industry who created a checklist in response to pilot failures of the complex new Boeing B17 leading to its success in the second world war. The transfer of ideas from one industry to another can lead to the loss of original concepts when applied in a different context (Kapur *et al.*, 2016). Yet checklists feature highly both in aviation and healthcare as a systems-based approach to minimise risk.

NEWS is often referred to as a patient checklist in the literature (Maxwell, 2018) and hence understanding the context and assumptions around its use may impact on its success as a decision aid. The terms ‘checklist’, ‘protocol’, ‘algorithm’, ‘standard operating procedures’ (SOPs) and ‘guidelines’ are frequently referred to in healthcare today. The terms are used interchangeably throughout the literature, all with similar features in that they offer a set of instructions telling healthcare professionals what to do in certain circumstances, albeit in different formats (Berg, 1997). In healthcare, the checklist approach gained momentum in the 1980s and 1990s within the field of anaesthetics with Atul Gawande (2011) seen as the leading physician advocating its use.

The most widely cited checklist in healthcare is the World Health Organisation (WHO) surgical safety checklist (Clay Williams and Colligan, 2015). The 19-item tool is reported to have produced dramatic improvements to perioperative patient safety (Haynes *et al.*, 2009; NHS, 2019). However, its effectiveness to eliminate ‘never events’ was questioned (NHS Improvement, 2017) when, in a 6-month period following implementation, there were 139 reports of wrong site surgery, 88 retained foreign objects and 46 reports of wrong implant/prosthesis. Whilst Collins *et al.* (2014) reported the WHO checklist to be a successful defence against both latent conditions and active failures, it was dependent on a culture of trust, a shared vision of safety and commitment (Collins *et al.*, 2014). These findings highlight the need to understand the context surrounding checklists and consideration of how both organisational culture and workflow support successful implementation.

Checklists have also featured highly in the management of safety in High Reliability Organisations (HROs), discussed within healthcare as a solution reducing patient

safety risk within the complex and challenging field of medicine (Thomassen *et al.,* 2011). The last ten years has seen an increasing focus on HROs and the applicability of HRO principles to patient safety in the healthcare sector (HSE, 2011; Serou *et al.*, 2021). HROs are recognised as organisations that operate in complex, high-risk environments yet experience fewer than anticipated accidents or harm events. It is therefore unsurprising with recognised avoidable deaths in the health sector that there is an interest in the principles underpinning HROs. They operate on five underlying principles – sensitivity to operations; preoccupation with failure; reluctance to simplify; commitment to resilience and deference to expertise (Veazie *et al*., 2019). Attempts at applying a number of HRO principles to healthcare provision in the NHS have been made, including improvements to patient safety culture, standardisation of processes, checklists and other tools (the Health Foundation, 2011) with varied success (Serou *et al.*, 2021). However, it must be acknowledged that HROs are usually found in industries such as aviation and power plants with methodical automated procedures and processes, whereas healthcare deals with humans that are unreliable, unpredictable, and prone to errors (Reason, 2000) and application of the HRO principles are challenging. Whilst the avoidable death of a single patient cannot be compared to that of a fatal plane crash, application of some of the high reliability principles may help to reduce avoidable deaths (Banfield, 2012) and therefore are considered in relation to the deteriorating patient phenomenon.

In England, at the time of writing, the NHS has five National Patient Safety Improvement Programmes identified for national focus. These relate to maternal and neonatal safety; medicine safety; adoption and spread safety; mental health; and managing deterioration. The aim of the managing deterioration programme is the reduction of deterioration associated harm through improvements in identification, escalation, and response to physical deterioration. This will be managed through a system-wide approach across both health and social care and the spread and adoption of a range of deterioration management tools is identified as a key ambition. The increase of the use of National Early Warning Score (NEWS) to manage deterioration forms part of this ambition (NHS England, 2019).

1.2 The deteriorating patient phenomenon

The deteriorating patient phenomenon, also frequently referred to in the literature as ‘Failure to rescue’ (Silber *et al.*, 2018), has been subject to international debate

since the 1990s, when it was recognised as posing a significant patient safety risk. For the purposes of this research study, which focuses on the deteriorating adult patient, a deteriorating patient is defined as:

> *"A patient that moves from one clinical state to a worse clinical state which increases their individual risk of morbidity, including organ-dysfunction, protracted hospital stay, disability or death".*
>
> (Jones *et al.*, 2013, p. 1031)

Acute deterioration is a time-critical situation as failure to detect deterioration or delay in acting can lead to adverse events such as unplanned critical care admission or death (Chan *et al.*, 2010; McGaughey *et al.*, 2010; Le Lagadec and Dwyers, 2017). The concept of 'failure to rescue' first emerged in the United States of America (U.S) (Brennan *et al.*, 1991) with clear evidence of injury to patients as the result of substandard care and a subsequent increase in malpractice litigation. This was followed by evidence in the U.K. that 10.8% of patients admitted to hospital experienced an adverse event (Vincent *et al.*, 2001), of which nearly half (48%) were considered preventable. The study does not clearly stipulate all criteria for an adverse event but did report that 8% of those patients had died as a result. The body of literature and research around the deteriorating patient phenomenon is constantly expanding and it is widely accepted that this problem is not unique to the U.K. with America, Australia and South Africa having reported similar issues (Waldie *et al.*, 2016). Early recognition and management of deterioration is recognised as key to prevention of associated adverse events (Smith *et al.*, 2013).

One of the earlier U.K. reports on the deteriorating patient was the National Confidential Enquiry into Patient Outcome and Death (NCEPOD, 2005) which reported at least 54% of patients in hospitals across the U.K. had received suboptimal care in the twelve-hour period prior to admission to an Intensive Care Unit (ICU). Explanations for this included failure of organisation; lack of knowledge; failure to appreciate clinical urgency; lack of supervision and failure to seek advice (NCEPOD, 2005). Sample sizes for the study did not meet expectations, with 1,677 cases reported in the data against an anticipated 6,000 at the start of the study (response rate of 28%), however the results are similar to other studies, providing evidence of suboptimal care within the U.K. It is noted that the NCEPOD (2005) research also reported lack of guidance for triggering a review, incompliance with

recording of respiratory rate and poor documentation of monitoring plans. Despite multiple recommendations for improvement in this first report, seven years later NCEPOD (2012) reported a similar situation with 70% of care given prior to cardiac arrest regarded as less than good and 38% of patients suffering avoidable cardiac arrests (NCEPOD, 2012). The study explored both pre and post cardiac arrest patient care and cites unreliability in recognition of deterioration; failure to respond to deterioration and failure to engage senior doctors. Similarly in 2015, "J*ust Say Sepsis"* (NCEPOD, 2015) reported that despite implementation of improvements, 40.1% of patients did not have a timely review by a senior clinician and 17.8% had no vital signs recorded.

During the period in which the NCEPOD undertook the three reports discussed above there were several policy documents and guidance that emerged around the subject of the deteriorating patient. A key document was the release of the National Institute for Health and Care Excellence (NICE) guideline CG50 (2007) covering how patients should be monitored to identify deterioration and outlining the care that should be received. The overall aim of the document was targeted at reducing length of stay, lack of recovery or death. The guideline made several recommendations (Table 1.1).

Table 1.1 NICE Clinical guideline [CG50] recommendations

- Physiological observations to be recorded in acute hospital settings on admission followed by a clear monitoring plan. These should be recorded and acted upon by staff trained to undertake them and who understand their clinical relevance.
- Physiological track and trigger systems should be used to monitor all adult patients in acute hospital settings. NEWS2 is endorsed by NHS England.
- Provision of critical care outreach services for patients whose clinical condition is deteriorating.
- Graded response strategy should be locally developed for patients at risk of clinical deterioration.
- Transfer of patients from critical care to general areas should be undertaken during daytime rather than overnight.

In 2020, NICE undertook a review of their initial 2007 guideline. Despite its release 13 years earlier and following a large-scale surveillance exercise undertaken as part of the review, NICE decided that an update to the guidance was not necessary.

Section 1.3 considers the extent to which 2007 guideline recommendations were implemented and to what degree of success.

Not mentioned in the NICE (2007) guidance but relevant to this research study is the concept of the Rapid Response System (RRS). RRS are hospital-wide systems that were developed to proactively identify patients at risk of clinical deterioration, placing patient safety at the heart of the system. The concept of the RRS was first introduced in Australia and the U.S. in the mid 1990s (Lee *et al.*, 1995) with other countries implementing RRS following recommendations of the Institute for Healthcare Improvement (IHI) in their Five Million Lives Campaign (2006). Whilst there are various adaptations of the system, most include an Afferent and an Efferent arm (Figure 1.1). The Afferent arm is the detection arm in which the process of recognition of deterioration takes place. The Efferent arm refers to the management of the patient by the response team. For the purposes of this research study the RRS is represented as per Figure 1.1.

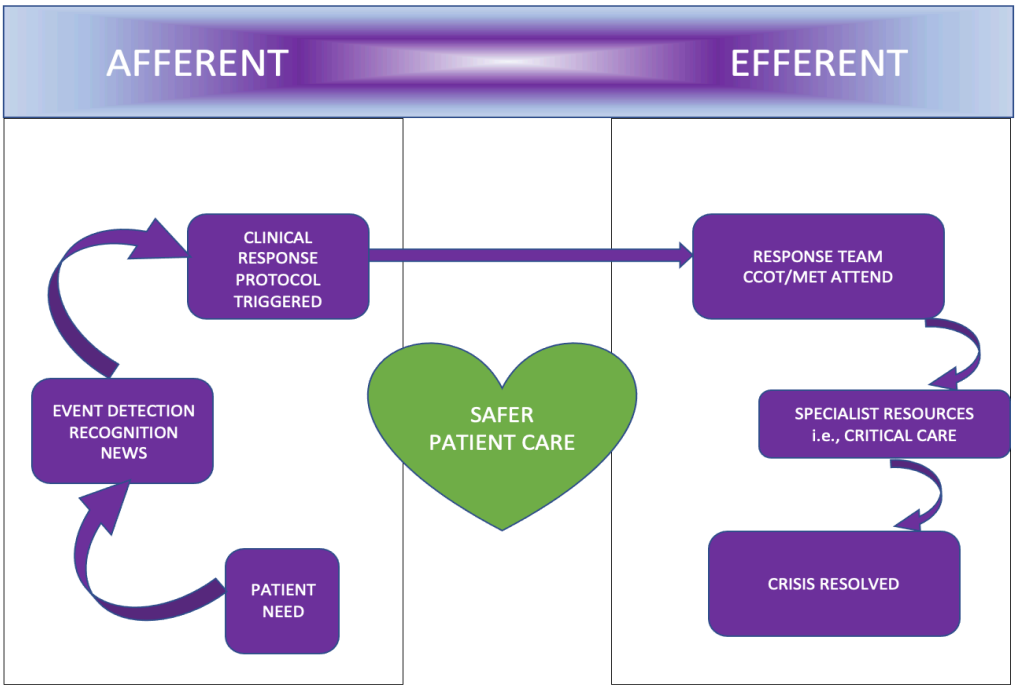


Figure 1.2 The rapid response system

1.3 Reviewing the recommendations of NICE CG50

NICE guidelines are developed using the 'best evidence available' with healthcare professionals encouraged and expected to take the guidance into account (NICE,

2022). NICE (2022) states that guidelines are neither rules to be followed nor a replacement for appropriate decision-making by healthcare professionals. NICE guidelines are highly regarded in clinical practice, reflected by their constant reference both through literature and development of policy (Lowson *et al.,* 2015). The recommendations of NICE CG50 are reviewed in the following sub-sections.

1.3.1 Recording of physiological observations by staff trained to undertake them and who understand their clinical relevance.

Prior to the release of the NICE guidance (2007) the Department of Health (DH, 2000a) undertook a review of critical care, defining four levels of critical care in the NHS (Table 1.2).

Table 1.2 Levels of Critical Care in U.K.

Level	Description
0	Patients whose needs can be met through normal ward care in an acute hospital
1	Patients at risk of their condition deteriorating or those recently relocated from higher levels of care, whose needs can be met on an acute ward with additional advice and support from the critical care team.
2	Patients requiring more detailed observation or intervention including support for a single failing organ system or post-operative care and those 'stepping down' from higher levels of care.
3	Patients requiring advanced respiratory support alone or monitoring and support for two or more organ systems. This level includes all complex patients requiring support for multi-organ failure

((Department of Health and Social Care, 2000)

These levels of care have recently been reviewed and updated by the Intensive Care Society (2021) to reflect the changes in acuity of patients and the escalating demand for critical care beds. There continue to be 4 levels of care which are ward care; level 1 enhanced care; level 2 critical care; level 3 critical care.

The 2000 review also recommended that all ward level nurses should be trained to care for Level 2 patients (High dependency) within four years to allow for the 30% increase in level 2 critical care beds (as part of an increase of 7,000 NHS beds) funded and planned in the NHS Plan (DoH, 2000b). This unrealistic timeframe to plan and implement a significant change to nurse education was unlikely to be met, as confirmed by subsequent reports (Adult Critical Care stakeholder forum, 2005; NCEPOD, 2005; DOH, 2006) which further highlighted the need for staff to be capable of recognition and management of patient deterioration. Whilst reference was made to an underlying need for training, no national standards were set as per the recommendations of the DOH in 2000. Without an agreed standard for competence, there was very little impetus to act. Subsequent research has further supported the value of education and training in combating the deteriorating patient phenomenon (Pantazopoulos *et al.,* 2012; Chua *et al.*, 2013; McDonnell *et al.*, 2013; Hart *et al.*, 2015; Massey *et al.*, 2016; Connell *et al.,* 2016) but without consensus emerging on the length, type, or content of educational provision. In the education of critical care practitioners in the U.K., there are nationally recognised frameworks and competencies (Critical Care networks, 2016) combined with a national standard for education set at 60 academic credits. There is no such stipulation for the provision of Deteriorating Patient education, despite the release of a national competency framework for Level 1 patient and enhanced care areas in 2018 (Critical Care networks, 2018). However, it should be noted that the COVID-19 pandemic may have impacted on any planned rollout of this framework.

In summary, since 2000 there has been continued pressure from the U.K. government and professional groups to develop staff competence through education and training. National competencies exist for specific areas of care such as critical care and outreach but not for ward-based healthcare professionals around patient deterioration. The Nursing and Midwifery Council standards of proficiency for Registered Nurses (RN) (2018) refer to the need for RNs to demonstrate the knowledge and ability to respond proactively and promptly to signs of deterioration but not specifically related to competency. Education and training opportunities around the deteriorating patient range from one day workshops, trademarked short courses (i.e., ALERT, BEACH, COMPASS, FIRST2ACT, AIM) to full academically accredited modules. The evaluation of impact from these courses is limited. Featherstone *et al.* (2005) evaluated the impact of attending an ALERT one-day course through pre and post course questionnaires (n=131) reporting increases in knowledge ($p<0.01$), confidence in recognition ($p<0.01$), and recall of life saving

procedures (p<0.01). Similarly, Clarke *et al.* (2019) reported increases in knowledge, skills, and confidence of health care assistants (n=24) in recognition of deterioration after attending a pilot half day training programme (BEACH – Bedside Emergency Assessment Course for Healthcare Staff). Both studies are small and descriptive in nature without the ability to measure impact on patient outcomes, nor retention of knowledge and skill gained as they were reliant on self-reported data. A quality assured approach to education and training remains lacking in the U.K.

1.3.2 Physiological track and trigger systems should be used to monitor all adult patients in acute hospital settings

A second recommendation of NICE (2007) refers to physiological track and trigger systems (TTS), frequently referred to as EWS. Other terms used to describe TTS are Modified Early Warning Score (MEWS); Vitalpac Early Warning Score (VIEWS) and Hamilton Early Warning Score (HEWS). The Collins dictionary (2021) refers to an 'early warning system as a means of warning people that something bad is likely to happen'. EWS sit into the afferent arm of the RRS (see Figure 1.1) and usually consist of three steps; monitoring; recognition and clinical response (Figure 1.3).

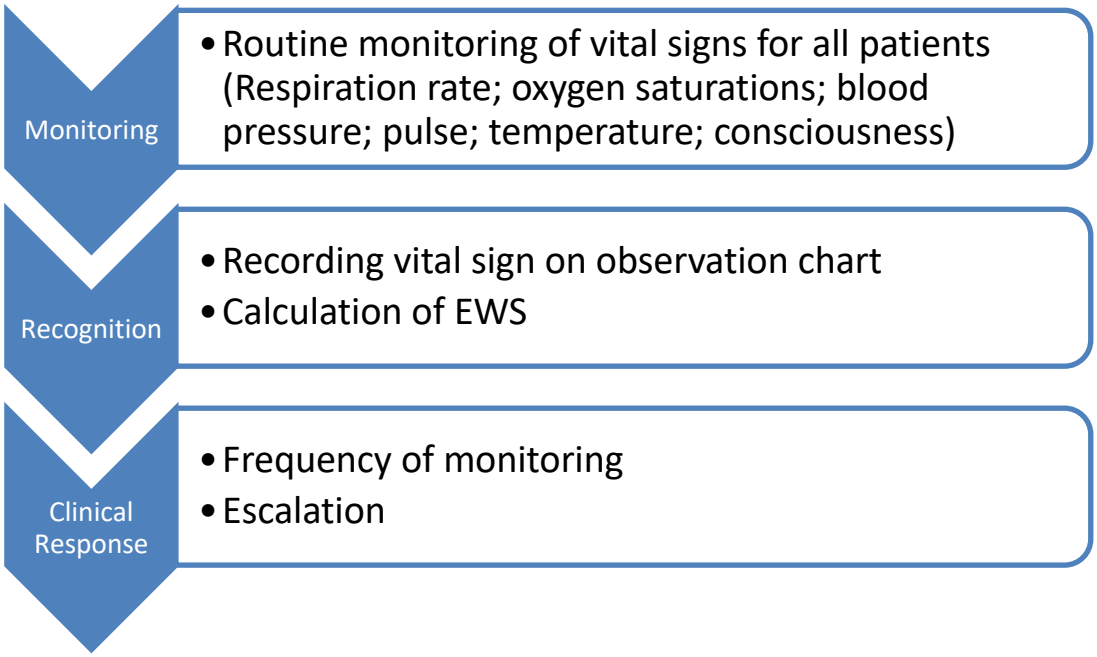


Figure 1.3 Steps in a EWS

The first step in EWS is the monitoring of vital signs. This is routinely undertaken for all hospital patients starting with a baseline set of vital signs upon admission, with

the frequency of future vital signs monitoring subsequently advised by the EWS. The second step is the recognition phase which involves the recording of the vital signs measurement onto an observation chart which may be paper based or an electronic system, followed by calculation of an early warning score. Step 3 is the clinical response stage which is determined by the score at step 2. The numerical score guides the recommended frequency of vital signs and the need for escalation, which is stipulated in a NEWS clinical response protocol.

EWS were proposed in the late 1990s as a solution to the incidence of adverse events and unnecessary deaths in hospital patients. As clinical prediction models, they aimed to identify the likelihood of patients deteriorating by triggering a warning when a patient showed physiological signs of deterioration. Initially paper-based, they are now increasingly used as electronic health record systems. (Gerry *et al.*, 2020). In healthcare, EWS have been implemented globally as a patient safety initiative, with multiple systems in place (RCP, 2012). In Australia, Canada and parts of Europe single parameter track and trigger systems are used as opposed to the multiple parameter, aggregated weighted systems utilised in the U.K. (Smith *et al.*, 2008). Both are recognised to have pros and cons with the former cited as easier to use but over-sensitive and the latter leading to fewer triggers but more prone to user error (Connell *et al.,* 2020). In the U.K., several TTS have been implemented with NICE (2007) acknowledging the lack of evidence for a single model. These include EWS, MEWS, and VIEWS (Grant, 2018). The lack of underpinning evidence for these TTS has been highlighted (Alam *et al.*, 2014; McGaughey *et al*., 2017; Gerry *et al.*, 2020) alongside concerns around their variable sensitivity (Gao *et al.*, 2007; Thompson *et al*., 2013; Le Lagadec and Dwyer, 2017; Kim *et al*., 2019).

The concern over the use of multiple different EWS led the U.K. to develop a standardised EWS, the National Early Warning Score (NEWS) in 2012 (Royal College of Physicians (RCP), 2012). In line with this, the single change made to the NICE CG50 guideline upon review in 2020 was to specify the use of NEWS as opposed to the earlier reference to a TTS, reflecting the national adoption of the new standardised system (NICE, 2020)

1.3.3 The National Early Warning Score

NEWS was developed by the RCP and launched in 2012, following several national enquiries into patient deaths in hospitals in the U.K. These inquiries include the

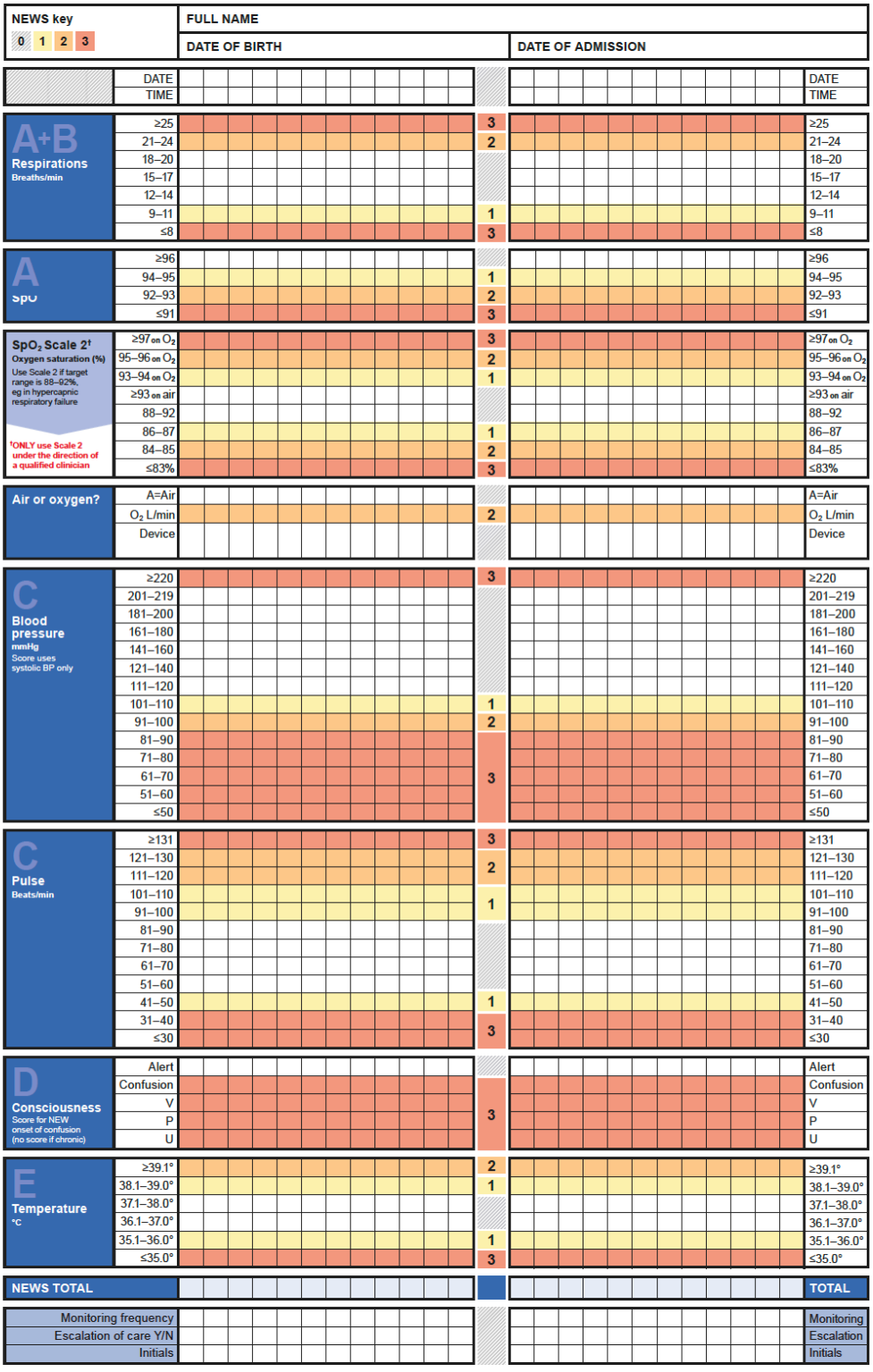
NCEPOD *Emergency admissions: a journey in the right direction?* (NCEPOD, 2007); NPSA *Recognising and responding appropriately to early signs of deterioration in hospitalised patients* (NPSA,2007); and the RCP *Acute medical care: the right person, in the right setting – first time report* (RCP, 2007). NEWS was devised on the basis that early detection, timeliness, and competency of the clinical response were a triad of determinants of clinical outcome in acutely ill people (RCP, 2020). The aim was for NEWS to replace the range of existing EWS and TTS described above. For several years, concerns over patient safety had been linked to using a variety of different EWS systems (Subbe and Sabin, 2014). The aim was to standardise the systems used to assess acute-illness severity in the NHS (McClelland, 2015) improving identification, monitoring and management of unwell patients in the acute hospital setting. There is no clear definition of NEWS, with it commonly referred to as a 'tool' (NHS England, 2022a), or a 'system' (RCP, 2017; NHS England, 2019; NICE, 2020;). This is further explored in Chapter 3 with regards to the impact of this on the research study.

NEWS is based upon a logistic regression model with early studies supporting its effectiveness in predicting unplanned admission to critical care (Corfield *et al.* 2014; Alam *et al.* 2015) and mortality (Tirkkonen *et al.* 2014; Alam *et al.* 2015). NEWS was not developed by the application of statistical methods as would be expected in the generation of a clinical prediction model, it was generated by consensus from a working party (Gerry *et al.*, 2020). Nor was it built from a strong evidence base as at the time of its development there were very few clinical trials of EWS on which to base decisions (Jones, 2013). However, it remains the only validated system recommended for use in the U.K., mandated by NHS England (NHSE, 2018).

Like EWS, NEWS represents a system. The first step is the taking of vital signs which are then plotted on a recognition tool in the form of an observation chart (Figure 1.4) which allocates a score to physiological measurements (Respiration rate; oxygen saturations; systolic blood pressure; pulse rate; level of consciousness or new confusion; temperature). The score allocated to each physiological parameter indicates how that parameter varies from the norm. Scores for individual parameters range between 0 and 3, with higher scores indicating worsening physiological derangement (Abbot *et al.*, 2015). Scores from each parameter are aggregated to give an overall score. The second step of NEWS is a clinical response protocol based on the NEWS trigger thresholds to guide the user to the

recommended action (Table 1.3). NEWS sits within the afferent arm of the RRS which forms the focus of this research study.

Figure 1.4 NEWS observation chart



NEWS key 0 1 2 3	FULL NAME		DATE OF ADMISSION	
		DATE OF BIRTH		
	DATE / TIME			DATE / TIME
A+B Respirations Breaths/min	≥25	3		≥25
	21–24	2		21–24
	18–20			18–20
	15–17			15–17
	12–14			12–14
	9–11	1		9–11
	≤8	3		≤8
A SpO	≥96			≥96
	94–95	1		94–95
	92–93	2		92–93
	≤91	3		≤91
SpO_2 Scale 2† Oxygen saturation (%) Use Scale 2 if target range is 88–92%, eg in hypercapnic respiratory failure †ONLY use Scale 2 under the direction of a qualified clinician	≥97 on O_2	3		≥97 on O_2
	95–96 on O_2	2		95–96 on O_2
	93–94 on O_2	1		93–94 on O_2
	≥93 on air			≥93 on air
	88–92			88–92
	86–87	1		86–87
	84–85	2		84–85
	≤83%	3		≤83%
Air or oxygen?	A=Air			A=Air
	O_2 L/min	2		O_2 L/min
	Device			Device
C Blood pressure mmHg Score uses systolic BP only	≥220	3		≥220
	201–219			201–219
	181–200			181–200
	161–180			161–180
	141–160			141–160
	121–140			121–140
	111–120			111–120
	101–110	1		101–110
	91–100	2		91–100
	81–90	3		81–90
	71–80			71–80
	61–70			61–70
	51–60			51–60
	≤50			≤50
C Pulse Beats/min	≥131	3		≥131
	121–130	2		121–130
	111–120			111–120
	101–110	1		101–110
	91–100			91–100
	81–90			81–90
	71–80			71–80
	61–70			61–70
	51–60			51–60
	41–50	1		41–50
	31–40	3		31–40
	≤30			≤30
D Consciousness Score for NEW onset of confusion (no score if chronic)	Alert			Alert
	Confusion	3		Confusion
	V			V
	P			P
	U			U
E Temperature °C	≥39.1°	2		≥39.1°
	38.1–39.0°	1		38.1–39.0°
	37.1–38.0°			37.1–38.0°
	36.1–37.0°			36.1–37.0°
	35.1–36.0°	1		35.1–36.0°
	≤35.0°	3		≤35.0°
NEWS TOTAL				**TOTAL**
Monitoring frequency				Monitoring
Escalation of care Y/N				Escalation
Initials				Initials

National Early Warning Score 2 (NEWS2) © Royal College of Physicians 2017

Table 1.3 Clinical response to NEWS Trigger thresholds

NEW score	Frequency of monitoring	Clinical response
0	Minimum 12 hourly	• Continue routine NEWS monitoring
Total 1-4	Minimum 4-6 hourly	• Inform RN, who must assess the patient • RN decides whether increased frequency of monitoring and/or escalation of care is required
3 in single parameter	Minimum 1 hourly	• RN to inform medical team caring for the patient, who will review and decide whether escalation of care is necessary
Total 5 or more Urgent response threshold	Minimum 1 hourly	• RN to immediately inform the medical team caring for the patient • RN to request urgent assessment by a clinician or team with core competencies in the care of acutely ill patients • Provide clinical care in an environment with monitoring facilities
Total 7 or more Emergency response threshold	Continuous monitoring of vital signs	• RN to immediately inform the medical team caring for the patient – this should be at least at specialist registrar level • Emergency assessment by a team with critical care competencies, including practitioner(s) with advanced airway management skills • Consider transfer of care to a level 2 or 3 clinical care facility, i.e. higher-dependency unit, or ICU • Clinical care in an environment with monitoring facilities

Adapted from (RCP, 2012; 2017)

Following release in 2012, NEWS was implemented across the U.K. By 2015, three-fifths of hospitals had adopted it (Hogan *et al.,* 2020) with a significant reduction of 9.4% (incidence rate ratio 0.906, $p < 0.001$) reported for the rate of in-hospital cardiac arrest between 2009-2015, however, there were no data to support any positive effects on hospital survival or evidence to suggest that this could be attributed solely to NEWS.

In 2017, the RCP released an updated version of NEWS, named NEWS2. Amendments were made upon suggestions of clinicians and anecdotal observations made by clinicians (Hodgson *et al.*, 2018; Pimentel *et al.*, 2019). The main driver for the change was to improve earlier identification of sepsis, following recommendations from the NEWS Review Group who believed that sepsis should be considered in any patient with a NEWS score of ≥ 5. NEWS also changed from including the AVPU scale (Alert, Voice, Pain, Unresponsive) to assess neurological status to ACVPU with the 'c' for confusion (RCP, 2017) in line with the report that acute confusion is a potent marker of clinical risk for sepsis (Seymour *et al.*, 2017). The focus on sepsis was in line with the NICE quality standard (NICE, 2016) which followed the NICE guideline NG51 (NICE, 2016). Both were developed as a result of the first NHS action plan on sepsis (NHS England, 2015) which highlighted that sepsis was associated with an estimated 37,000 deaths per year in England.

NEWS2 included additional guidance for the use of oxygen in patients with chronic hypercapnic respiratory failure commonly seen in patients with chronic obstructive pulmonary disease (COPD). The original NEWS generated an automatic high score for these patients who due to their hypoxia received supplemental oxygen leading to frequent alerts (RCP, 2017). NEWS2 included a sub-chart in the form of an alternative oxygenation scale which is designed to help to better tailor escalation to baseline oxygen levels in those with respiratory disease. (Inada-Kim and Nsetebu, 2018)

Unlike the original NEWS, the rollout of NEWS2 was supported with financial incentives under the NHS Commissioning for Quality and Innovation (CQUIN) framework. The quality indicator remains in place at the time of writing, as a clinical priority to incentivise adherence through recording of the NEWS2 score, escalation time and response time as a measure (NHS England and NHS Improvement, 2022). The CQUIN incentive in 2018 was accompanied by a mandate for NEWS2 in both acute and ambulance NHS Trusts, through means of a patient safety alert (NHS England, 2018). The requirement was for all NHS Trusts to move to NEWS2 by March 2019 with the National Quality Board endorsement of the tool as a 'single language of sickness across all conditions and settings' (Clark, 2018 para 13). Whilst private hospitals do not fall under the NHS mandate, evidence suggests their adoption of NEWS2 (Nuffield Health, 2021; Spire Healthcare, 2021). Shortly after release of NEWS2, the Patient Safety Measurement Unit (2018) conducted a survey of all NHS Trusts (mandated) on their use of NEWS. Findings confirmed the

widespread use of NEWS with 64.6% of returning organisations (n=82) using an unmodified NEWS, 14.2% a modified version of NEWS (n=18) and 19.7% (n=25) using another EWS.

Whilst there is evidence of decreasing numbers of cardiac arrests since the implementation of NEWS2 (National Cardiac Arrest Audit, 2021) between 2016/17 (n=16,682) and 2021/22 (n=10,770) it is not clear that this can be attributed to NEWS2. There are a number of factors that may have influenced the decrease in cardiac arrests such as sample characteristics (for example number of participating hospitals, number of admissions, population demographics) and potentially the data may have been skewed by the COVID-19 pandemic. Whilst relatively new, the evidence for the impact of NEWS2 on patient outcomes is limited, however early studies show NEWS and NEWS2 perform similarly in predicting the risk of Serious Adverse Events (Pimentel *et al.*, 2019; Thoren *et al.*, 2022) suggesting NEWS2 has not improved this. Further studies are required to determine its effectiveness, however recent focus has been diverted to its use within the COVID-19 pandemic (see section 1.4).

Since the inception of NEWS, the RCP have fiercely defended criticisms of NEWS (Dean *et al.*, 2020), referring to its successes from evaluative data however the quality of these data is reported to be poor with particular identification of poor methods and inadequate reporting across 95 published studies included in a systematic review of EWS (Gerry *et al.,* 2020). One such criticism is that NEWS has become a replacement for, rather than an adjunct to clinical judgement, which was the intention, as the RCP have consistently stated (RCP, 2020). The terms ‘clinical judgement’ and ‘clinical decision’ making are used interchangeably throughout the literature around NEWS, often causing confusion (Maule, 2001).

Clinical judgement is a term used to define the way that nurses understand the presenting problem (Benner *et al.,* 2010), interpreting or concluding a patient’s needs, concerns, or health problems (Tanner, 2006). Clinical decision-making is a process of choosing between alternatives (Thompson and Dowling, 2009), deciding to take action (or not) using or modifying standard approaches or improvising new approaches as required (Tanner, 2006). Both terms are widely discussed in application to the use of NEWS throughout the existing evidence base, often without definition or consideration of the theoretical principles. Chapter 3 which presents this study’s theoretical underpinning, will explore the theories surrounding clinical

decision-making and judgement, demonstrating the overlap present in both the way the terms are utilised and the theories surrounding them.

Prior to NEWS, clinical judgement alone proved insufficient for detection of deterioration with evidence of continuing failure to identify and properly manage patient deterioration (RCP, 2012, 2017). However, as noted, studies show that the implementation of NEWS has not eradicated missed patient deterioration, so it is important to explore how it is being used by nurses.

1.3.4 Provision of critical care outreach services for patients whose clinical condition is deteriorating

Since the introduction of Rapid Response Systems (RRS), response teams have been implemented globally. These have been given various names such as the Critical Care Outreach Team (CCOT); Medical Emergency Team (MET); Rapid Response Team (RRT); or Patient at Risk Team (PART) (McGaughey *et al.,* 2010). In the U.K. the most widely used term is the CCOT, the term utilised by the NICE guidance (NICE, 2018) and the term used at the site for this study.

The introduction of CCOT was recommended in ‘’*Comprehensive critical care”* (DH, 2000) followed by their implementation shortly afterwards, with an aim of ensuring patients receive timely intervention upon detection of deterioration. CCOTs operate in the efferent limb of NEWS providing appropriate response and action (Le Lagadec and Dwyer, 2017). A study undertaken by the Patient Safety Measurement Unit (2018) showed that 100% NHS trusts had a formal escalation process with the primary escalation point being the medical team caring for the patient (70%), a CCOT (25%) or a MET (5%).

Access to a CCOT for in-hospital patients is a recommendation in NICE Guidance NG94, (2018) with NEWS providing a set of calling criteria (NICE, 2020) and clinical consensus for escalation and clinical review based upon vital signs. This guidance was offered despite a review undertaken by NICE (2020) concluding that having a CCOT in place made no difference to in-hospital mortality, avoidable adverse events (such as cardiac arrest) or ICU admissions. Critics of these studies suggest that they should have focused on failure to rescue as an outcome to fully understand the impact of the CCOT and hence recommend further investigation (Føns-Sønderskov

et al., 2022). This may have been reflected by the NICE committee who essentially made the recommendations of implementing CCOTs based upon their clinical expertise rather than robust scientific evidence.

The composition of CCOTs varies. In general, a CCOT is commonly composed of nurses and Allied Health Professionals (AHPs) with a background in critical care, supported by a doctor usually from an intensive care speciality (NICE, 2018b). A MET is usually led by a Doctor (Føns-Sønderskov *et al.*, 2022). Comparison of the two and impact on outcomes would be an interesting study however this is not currently available. In the U.K., a lack of national strategy for CCOT or equivalent services has led to an ad-hoc approach to development with different team and service configurations based upon local need and resources (National Outreach Forum, 2020). This is evident in the rotas worked by the CCOT which vary between hospitals in the U.K. with Outreach services available in 82% of hospitals; 39% of these provided the service 24/7, 39% provided it 7/7, and 5% from Monday-Friday daytime only (National Outreach Forum, 2020). This disparity is likely to be as a result of financial commitment, staffing and possible regional variation. Evidence to support the need for a 24/7 service is limited and considered poor in quality (NICE, 2018).

From the survey undertaken by the Healthcare Safety Investigation Branch (2019), all responding NHS Trusts reported the presence of an escalation process, but with inconsistencies in the way that the CCOT is utilised, with clinical response protocols different to those outlined by the RCP. Some CCOTs have widened their calling criteria to patients and families who may escalate their concerns if they believe they are not being acknowledged by the patient's clinical teams (Odell, 2019) and contrary to opinion the service did not lead to considerable extra workload with just 1% of activations coming through this route.

NICE (2018b) recognised the impact of social and contextual factors on the work of the CCOT. Whilst there is a substantive evidence base of support for the RRT in general (Olsen *et al*., 2019), several barriers are cited within the literature. Allegiance to a traditional model of escalation where calling the MET may be associated with the urgency of a resuscitation call was reported (Braten, 2015) with Azzopardi *et al.* (2011) finding 80% of nurses and 45% of doctors preferred to contact the covering doctor as a first port of call. This finding is supported by other studies which report hierarchy as a barrier to alerting the RRT (Buist *et al.*, 2002;

Bellomo *et al.*, 2004; Azzopardi *et al.*, 2011; Braten, 2015) with less experienced staff discouraged from escalating directly to RRT. Other factors influencing decisions about escalation included fear of criticism (Azzopardi *et al.*, 2011; Leach *et al.*, 2013; Massey *et al.*, 2014; Olsen *et al.*, 2019; Loisa *et al.,* 2022); conflict between trigger criteria and clinical judgement (Azzopardi *et al.*, 2011; Massey *et al.*, 2014; Braten, 2015); interpretation of escalation criteria and increased workload (Olsen *et al.*, 2019; Loisa *et al.*, 2022).

The full impact of the COVID-19 pandemic on the role of the CCOT is unknown, but the evidence base is slowly emerging. With an unprecedented surge of deteriorating and critically ill patients, there was sustained pressure on both staff levels and hospitals beds, alongside mass staff deployment. A significant increase in CCOT reviews of level 2 acuity (see table 1.2) patients was observed (1770 patients vs 558 historical: p=0.003) in a 12-month period (Fazzini *et al*., 2022) impacting on workload and reorganisation of the CCOT such as facilitating initiation of awake proning (positioning the patient on their front to improve oxygenation) alongside non-invasive ventilation to avoid further deterioration and critical care admission (Ehrmann *et al.*, 2021). Major focus moved to education and training and support of surge planning (Marks *et al.*, 2021). Another study reported that 52% of patients treated on wards met the criteria for CCOT escalation at any given time (Vlachos *et al.,* 2021) but there is little data to compare it to at these early stages. The pandemic has many potential implications for the CCOT and the wider healthcare team, which will now be discussed in section 1.4.

1.4 NEWS and the impact of the COVID-19 pandemic

Although the COVID-19 pandemic commencing in 2020 occurred after the period of data collection for this study, it provides important context as to the usefulness of NEWS in the face of a novel virus. In the early stages of the pandemic (April 2020) NICE (2020) recommended the use of NEWS2 in its guidance for the management of COVID-19 patients. In addition, the Royal College of General Practitioners (RCGP, 2020) endorsed NEWS2 shortly afterwards for the assessment of patients with COVID-19, however a few weeks later they withdrew this recommendation as evidence developed regarding its lack of sensitivity and specificity. A rapid review (Greenhalgh *et al.,* 2020) concluded that evidence for use of NEWS in COVID-19 was limited. COVID-19 patients did not appear to present with the same symptoms of respiratory distress with reports citing ‘silent hypoxia’ where a decreased oxygen

saturation was not matched by an associated increase in respiratory rate, making deterioration less easy to spot (Tobin *et al.*, 2020). NHS England (2020) revised the recommended targets for oxygen saturations to 92% as opposed to the normal targets of 94-98% specified in NEWS under guidance from the British Thoracic Society (Driscoll *et al.,* 2017).

In 2020, The HealthCare Safety Investigation Branch (HSIB, 2020) responded to a referral regarding difficulties in identifying clinical deterioration in COVID-19 patients on general wards and over-reliance on NEWS being used in isolation. Acknowledging the mass staff redeployment in response to the pandemic, the report recognised that staff were unused to caring for respiratory patients and therefore may have lacked the knowledge needed to apply their clinical judgement, hence their reliance on the tool (HSIB, 2020). However, whilst the report revealed a perceived lack of nurses' clinical judgement, it did not consider that this may not be as a result of the pandemic but a reflection of a wider deficit in nurses' ability in these skills.

With a sudden decrease in oxygen saturations and an increased need for supplemental oxygen being a prevalent indicator of deterioration for COVID-19, patients would not necessarily score sufficiently on NEWS to trigger escalation and were therefore not receiving urgent treatment. This is supported by one of the largest, multi-centred, studies (Scott *et al.*, 2022) considering the prognostic value of NEWS in hospitalised patients with COVID-19, which reported that patients with higher first scores were more likely to die (19% with NEWS =0-2 vs 49% with NEWS 7+). However, the study also found that NEWS values were low (50% NEWS =0-2, 27% NEWS 3-4) even in patients that were sick enough for admission to hospital (Scott *et al.*, 2022). Conversely, Baker *et al.* (2021) reported only moderate predictive value in NEWS at baseline but high levels of prediction longitudinally, however, they also reported significant numbers of patients with a false-positive NEWS triggers (47.2%) where the patient did not go on to develop a serious event.

In patients with COVID-19 across the globe, the sensitivity and specificity of various EWS was reported as limited (Myrstad *et al.,* 2020) leading to a range of adaptations to increase their efficacy. For example, a clinical trial conducted in China (Liao *et al.,* 2020) added age as a parameter to their modified EWS as evidence emerged that age was an independent risk factor for survival yet provided no evidence regarding the effectiveness of this approach. Similarly predictive value

of age-based modification of NEWS was studied by Carr *et al.* (2020) and Maves *et al.* (2021) with the former study suggesting NEWS + age was superior at predicting critical illness or death but the latter reporting that NEWS + age was not superior in its predictive value.

Healthcare systems across the globe faced unfamiliar challenges in the pandemic. The novel nature of the virus and its clinical presentation meant that clinical judgement was being strained, heightened by uncertainty regarding the best way to treat patients (Martínez-Sanz *et al.*, 2020). The nature of the patient presentation was different, with patients appearing well then deteriorating rapidly. This created a huge increase in demand for critical care beds leading to the creation of Nightingale hospitals (Kings Fund, 2021) and upskilling of nurses in the development of critical care competencies. New and collaborative ways of educating the workforce were seen, such as the Health Education England London Transformation and Learning Collaborative (LTLC) established in summer 2020 to support cross skilling of the NHS London Workforce and prepare for the second surge of the COVID-19 pandemic. With mass staff deployment to areas that were unfamiliar, healthcare professionals were working with uncertainty and lack of recent experience in managing acutely ill patients. As a result of the pressures, healthcare delivery reverted to historical methods of treatment such as task-orientated approaches such as proning teams in critical care (Lumley *et al.,* 2020). The emergence of task-based teams, similar to models developed in the 1950s, were recognised for their ability to support less experienced staff and safely utilise the nursing skill mix (Hales *et al.,* 2020). Standard Operating Procedures (SOPs), usually in the form of checklists, were introduced to support healthcare staff with tasks, as part of a risk- assessment exercise to instruct how a particular procedure should be carried out (Goyal *et al.,* 2021; NHS England, 2021).

Since the pandemic, there have been changes to the provision of healthcare, including enhanced care areas for patients whose care needs fall between ward-based care and critical care, previously labelled High Dependency Care (Faculty of Intensive Care Medicine, 2020), allowing critically ill patients better access to the specialist support they require. Whilst data in this study were collected pre-pandemic, understanding how nurses use NEWS outside of a pandemic situation remains important knowledge to contribute to the limited evidence base, as no previous studies have explored this.

This study aimed to explore Registered Nurses' experiences and perceptions of using NEWS in the U.K. as part of the recognition and management of acute adult patient deterioration. This is not specific to either version of NEWS (NEWS or NEWS2). Nurses' use of each tool cannot be differentiated; the principles of the tool are the same.

1.5 Rationale for the study and researcher positioning

This section is written using the first person, similar to other parts of this thesis, reflecting the researcher as central to the interpretation. These sections are reflective in nature, critically appraising elements of the research process. As researcher for this study, I am a Registered Nurse (RN) and a nurse educator. I have 30 years' experience as a RN. I have been delivering deteriorating patient educational provision for 12 years through various means including Higher Education (HE) academically accredited modules, a Massive Open Online Course (MOOC) and e-learning programmes for e-learning for healthcare, the NHS e-learning platform. Through this time, I have advocated for the development of RNs skills in systematic clinical assessment using the Airway; Breathing; Circulation; Disability; Environment (ABCDE) approach endorsed by the U.K. Resuscitation Council (2021) and NICE (2007). I have observed that before their educational intervention, RNs have limited assessment skills beyond measurement of physiological signs and took a haphazard approach to the assessment of patients.

When NEWS was released in 2012, adoption of the system was slow, with RNs attending my classes reporting using a variety of EWS in their clinical practice. This was a challenge for a nurse educator and hence when NEWS became more widely adopted, the need for standardisation of an early warning system was never more apparent. I felt confident that NEWS, structured around the ABCDE approach would help to improve recognition and management. My expectations for NEWS were high and I believed it would help in my educational provision with students coming with an improved baseline knowledge of assessment. I assumed that its implementation would be accompanied by a rigorous educational programme to prepare nurses for its use. I believed that because the existing data supported the ongoing lack of recognition of deterioration, healthcare organisations would invest heavily in its implementation to support improvement in patient outcomes.

However, what I observed was an implementation that varied across organisations without guidance from NHS England on the process of implementation. Staff development varied, the RCP released a 30-minute e-learning programme on how to complete NEWS but nothing to support clinical judgement or decision-making. Emerging from this was a reliance on NEWS without further assessment, it did not appear to be used as an adjunct to clinical judgement as proposed (RCP, 2012) but more frequently seemed to be a replacement. RNs attending the deteriorating patient module would describe their experiences of NEWS, suggesting a culture of compliance measured by audits, which appeared to limit their critical thinking skills. This anecdotal evidence from my own experience was supported by the developing body of literature on the subject. Whilst those exposed to educational interventions demonstrated improvement in their knowledge and skills through formative and summative clinical assessment strategies, and I always encouraged nurses to remember to use their clinical judgement as well, I was conscious this was only a small number of RNs. As a result, I developed an interest in exploring the use of NEWS, how nurses perceived it and how NEWS impacted on their clinical judgement and decision-making processes.

RNs are considered to be the main users of NEWS; however little research has been undertaken into their experiences and perceptions of its use. The HSIB report (2018) recommended further evaluation of the use of NEWS in practice as one of its recommendations. The response from the RCP focused on the development of e-learning, electronic recording platforms and sharing of good practice, lacking reference to either nurses or exploration of its use through research. Research into the use of EWS was recommended by other studies (Massey *et al.*, 2016; McGaughey *et al.,* 2017) with suggestions of various cultural and behavioural factors (Grant, 2019) based upon limited evidence. This study aims to contributes to the gap in the existing evidence base by exploring nurses' experiences and perceptions of using NEWS in the U.K., considering the factors that impact its use and gaining greater understanding of the interaction between NEWS and clinical judgement and decision-making.

1.6 Organisation of the thesis

Chapter 1 has provided background and context to this research study, introducing key concepts and definitions. Topics introduced in this chapter include patient safety, the deteriorating patient phenomenon and measures taken to address this

patient safety issue through the use of early warning systems. The chapter concludes by providing a rationale for the study based upon personal experience and gaps in the existing literature.

Chapter 2 offers a literature review, outlining the strategy and rationale for the rapid review approach taken. Congruent with the Gadamerian phenomenological methodology employed in this study, the literature review was an integral part of the research process, revisited at different stages of the process, contributing to a final new horizon.

Chapter 3 provides an essential theoretical underpinning that offers a framework for the study. This chapter defines and explores theories and concepts relevant to nurses' use of NEWS; clinical judgement and clinical decision-making.

Chapter 4 justifies the methodology and methods for the study, situating me as researcher at the centre of the study and detailing the Gadamerian spiral approach taken from the evolvement of the research question to the emerging new horizon presented as an original contribution to knowledge in the final chapter. Reflection was core to this chapter as per the philosophical approach guided by Gadamer. My ontological and epistemological stance are questioned alongside the rationale for the methodological approach and the experience of the research process. Ethical considerations are included within the chapter detailing decisions taken to ensure protection of participants. The steps taken to ensure both reflexivity and trustworthiness are discussed within the chapter with a narrative of how they have been achieved within the Gadamerian methodological approach.

Chapter 5 presents a discursive analysis of the study in relation to the meaning for clinical practice as a result of how Registered Nurses (RNs) use NEWS. These reflect the outcome of the processes highlighted in the Gadamerian spiral (Chapter 4, Figure 4.1). The chapter reveals a story of RNs using NEWS highlighting three points of risk presented as pinch points, points of potential patient safety failures where patients have potential to become exposed to the risk of their deterioration being missed or poorly managed which could ultimately result in a preventable death.

Chapter 6 reveals the meaning of using NEWS to nurses themselves. Three themes are presented which include Developing competence and confidence using NEWS;

Clinical Practice Culture in using NEWS; NEWS and clinical judgement. The chapter contextualises the workplace culture surrounding nurses' use of NEWS, the lack of clinical judgement skills and workload issues impacting the effective use of NEWS as a tool to support clinical judgement.

Chapter 7, the final chapter, presents the conclusions for the research study, pulling together all parts of the thesis into the whole, outlining both implications and recommendations for practice, policy and research. The limitations and strengths of the study are presented alongside a reflection of the process of undertaking the research and the approach taken. The chapter summarises the original contributions made by this study for patient safety, practice, policy, education, training, and research.

Chapter 2 Literature review

2.1 Introduction

The previous chapter provided an introduction and background to the deteriorating patient phenomenon, focusing on the use of Early Warning Scores. The chapter concluded that there is a need to explore nurses' experiences and perceptions of using NEWS in the U.K. This chapter therefore aims to establish what is already known in order to clearly identify the knowledge gap that this study addressed. The chapter commences with an overview of the background to the literature review followed by justification of, and description of the rapid review methodology employed. The results of the literature review are presented as themes with a discussion as to the relevance to the deteriorating phenomenon and the emerging gaps in the evidence base.

2.2 Background to the literature review process

The nature of this research study and the constructivist epistemological stance (explained in Chapter 3) of the researcher led to an iterative approach to literature reviewing, acknowledging the steps of the hermeneutic circle, moving back and forth between the text and the context whilst sense making (Standing, 2009). Whilst the review of the literature was ongoing throughout the study from design, through data collection and analysis, subsequently contributing to, and evolving, the interpretation and discussion of study findings, the rapid review presented in this chapter took place between March 2020 and February 2021.

Early scoping literature reviews (Appendix 1) undertaken whilst developing the research question for this study revealed several key points. A range of quantitative studies conducted in the U.K. and Australia report EWS as an effective tool in identifying deterioration and predicting patient outcome such as unplanned intensive care admission (Chua *et al.,* 2017; McGaughey *et al.*, 2017; Saab *et al*., 2017). However, despite several systematic reviews highlighting the impact of cultural, organisational, and educational factors on identification of deterioration (Chua *et al.*, 2017; Le Lagadec *et al.,* 2017; McGaughey *et al.*, 2017) few studies have addressed the human factors which may impact on the use of the tool or investigated users' experiences, specifically those of nurses who are the main users of EWS tools (National Confidential Enquiry into Patient Outcome and Death [NCEPOD], 2015).

Evidence of poor compliance with EWS (Endacott and Donohue, 2010; Hands *et al.*, 2013; Kolic *et al*., 2015; Mitchell-Scott *et al.,* 2015; Odell, 2015), further compounded by failure to initiate effective escalation (Ludikhuize *et al.,* 2011; Shearer *et al.,* 2012; Massey *et al.,* 2014; Petersen *et al.,* 2014; Fox and Elliot, 2015) also emerged at the scoping stage of the review. Several authors suggest that EWS may prevent nurses from using clinical judgement and increase their reliance on tools (Bailey *et al.,* 2013; Alam *et al.,* 2014; McGaughey *et al.,* 2017) but this requires further exploration.

These early literature reviews revealed the bulk of studies being quantitative in nature, underpinned by realist ontology, therefore failing to provide insight into the experiences of nurses who are the main users of the tool. This gap in the literature around nurses' use of NEWS rather than the general effectiveness of EWS informed the focused literature review presented next which utilised a rapid review approach. The question for the rapid review was – *"What factors influence nurses' practice within an EWS?".*

2.3 Design

The earlier scoping reviews revealed a gap in the evidence, in particular in qualitative studies, yet the fast-changing evidence base for the subject matter led to the decision to utilise a rapid review approach to the literature review. The rationale for this was multi-faceted. First, as a result of the ongoing frequency of publications the review needed to be conducted in a timely manner to ensure it maintained currency. Rapid (or restrictive) reviews are a variation of a systematic review that comprehensively review literature, whilst balancing time constraints and resources (Hamel *et al.,* 2021). A systematic review usually requires six months – two years to complete (Khangura *et al.,* 2012) which would not be suitable for this study as it would not demonstrate currency. This approach enabled a review of the literature in a more efficient manner, sampling fewer databases and completing the review in a timely manner. Haby *et al.* (2016) suggested that in a rapid review, components are simplified, omitted, or made more efficient to enable their completion within a shorter timeframe. Rapid reviews also have a close relationship with the end-user as the review is based upon the needs of the decision maker; an important consideration in a fast-changing healthcare setting.

The second factor to influence this decision was the review was undertaken by a single researcher rather than a team, as expected with a systematic review where

each step is conducted by two reviewers independently (Tricco *et al*., 2015). A systematic review is therefore very resource intensive. It is acknowledged that a rapid review can be conducted by a single reviewer but recommended that a verification process is included through a second reviewer (Garritty *et al*., 2021).

Hartling (2017) offers guidance on important characteristics to include when undertaking a rapid review. With the abundance of literature around deteriorating patients worldwide, the ability to follow a clear methodology and set appropriate inclusion/exclusion criteria was essential. This included considerations throughout the review such as the trustworthiness of the source, the focus on clinical significance as well as statistical significance, the currency of the source, and finally the ability of the source to address the specific research question. The Cochrane Rapid Reviews Methods Group provide guidance (Garritty *et al*., 2021), consisting of 26 recommendations (Table 2.1). These recommendations have been applied throughout this review.

Table 2.1 Cochrane rapid review methods recommendations

Setting the research question – topic refinements
Involve key stakeholders (e.g., review users such as consumers, health professionals, policymakers, decision-makers) to set and refine the review question, eligibility criteria, and the outcomes of interest. Consult with stakeholders throughout the process to ensure the research question is fit for purpose, and regarding any ad-hoc changes that may occur as the review progresses. (R1) Develop a protocol that includes review questions, PICOS, and inclusion and exclusion criteria.
Setting eligibility criteria
Together with key stakeholders: • Clearly define the population, intervention, comparator, and outcomes. • Limit the number of interventions (R2) and comparators (R3). • Limit the number of outcomes, with a focus on those most important for decision-making. (R4) o Consider date restrictions with a clinical or methodological justification. (R5) o Setting restrictions are appropriate with justification provided. (R6) o Limit the publication language to English; add other languages only if justified. (R7) o Systematic reviews (SRs)a should be considered a relevant study design for inclusion. (R8) o Place emphasis on higher quality study designs (e.g., SRs or RCTs); consider a stepwise approach to study design inclusion. (R9)
Searching
o Involve an information specialist. o Limit main database searching to CENTRAL, MEDLINE (e.g., via PubMed), and Embase (if available access). (R10)

○ Searching of specialized databases (e.g., PsycInfo and CINAHL) is recommended for certain topics but should be restricted to 1e2 additional source or omitted if time and resources are limited. (R11) ○ Consider peer review of at least one search strategy (e.g., MEDLINE). (R12) ○ Limit gray literature and supplemental searching (R13)
Study Selection
Title and abstract screening ○ Using a standardized title and abstract form, conduct a pilot exercise using the same 30-50 abstracts for the entire screening team to calibrate and test the review form. ○ Use two reviewers for dual screen of at least 20% (ideally more) of abstracts, with conflict resolution. ○ Use one reviewer to screen the remaining abstracts and a second reviewer to screen all excluded abstracts, and if needed resolve conflicts. (R14) Full-text screening ○ Using a standardized full-text form, conduct a pilot exercise using the same 5e10 full-text articles for the entire screening team to calibrate, and test the review form. ○ Use one reviewer to screen all included full-text articles and a second reviewer to screen all excluded full-text articles. (R15)
Data Extraction
○ Use a single reviewer to extract data using a piloted form. Use a second reviewer to check for correctness and completeness of extracted data. (R16) ○ Limit data extraction to a minimal set of required data items. (R17) ○ Consider using data from existing SRs to reduce time spent on data extraction. (R18)
Risk of bias assessment
○ Use a valid risk of bias tool, if available for the included study designs. ○ Use a single reviewer to rate risk of bias, with full verification of all judgments (and support statements) by a second reviewer. (R19) ○ Limit risk of bias ratings to the most important outcomes, with a focus on those most important for decision-making. (R20)
Synthesis
○ Synthesize evidence narratively. ○ Consider a meta-analysis only if appropriate (i.e., studies are similar enough to pool). (R21) Standards for conducting a meta-analysis for an SR equally apply to an RR. ○ Use a single reviewer to grade the certainty of evidence, with verification of all judgments (and footnoted rationales) by a second reviewer. (R22)
Other considerations for Cochrane RRs
RRs should be preceded by a protocol submitted to and approved by Cochrane (R23); the protocol should be published (e.g., PROSPERO or Open Science Framework) (R24); allow for post hoc changes to the protocol (eligibility criteria etc.) as part of an efficient and iterative process (R25); document all post hoc changes; and incorporate use of online SR software (e.g., Covidence, DistillerSR, and EPPI-Reviewer) to streamline the process (R26)

(adapted from Garritty *et al.*, 2021)

2.3.1 Strategy

Kelly *et al*. (2016) highlight the need for rapid reviews to have a protocol describing the objectives, scope, and approach. Topic refinement as suggested by the Cochrane recommendations involves setting and refining the review question, eligibility criteria and the outcomes of interest (Garritty *et al.*, 2021). Whilst the recommendations do not suggest a specific approach to rapid review, Khan *et al*. (2011) emphasise the importance of the reviewer being both precise and specific when articulating the problems to be addressed, advocating a structured approach with four components to framing questions. This approach was employed to guide the search and to identify inclusion and exclusion criteria, presented as Population, Intervention, Outcome and Study design (Table 2.2). This framework was considered relevant for this study as it focuses on a clinical question of a qualitative nature (Tricco *et al.*, 2015). Dibley *et al*. (2020) suggest the use of the SPIDER tool (Sample; Phenomenon of Interest; Design; Evaluation; Research type) (Cooke *et al.,* 2012) as an alternative framework to PICO to guide a search for qualitative data however, since the literature review took the form of a Rapid Review applying Cochrane recommendations, PICO was utilised with the omission of 'C' for counter intervention as this was not relevant.

The National Early Warning Score (NEWS) was introduced in 2012 but mandated in 2018 in the U.K. Due to its recency in adoption, the search covered all types of EWS as identified in Chapter 1. Initial searches were conducted in 2018 and 2019 however because of the evolving nature of NEWS a new search was performed in 2020 and then again in 2021, which included data published related to the COVID-19 global pandemic. The search was undertaken with the help of a health librarian. This enabled more thorough use of the online tools for searching and recording search outputs, enhancing reproducibility. Whilst this is an approach recommended by Cochrane, it evolved based on researcher reflexivity and a desire to ensure the chosen strategy led to a robust search.

The key search terms were Nurs* AND early warning scor* OR 'track and trigger scor*' OR 'mews' OR 'news' OR 'ews'.

Table 2.2 Inclusion and exclusion criteria – literature review

	Inclusion	**Exclusion**	**Rationale**
Population	Data provided by Registered Nurses (RNs) providing acute care to adult patients	Data reported from non-nurses or nurses working with children and young people; midwifery or non-acute care areas	NEWS validated for adult care. Study focused on acute care.
Intervention	EWS tools / Track and Trigger systems (TTS)	Not involving nurses use of EWS / TTS	Review focuses on nurses
Outcome	Factors impacting on nurses' use of EWS	Studies measuring the impact of NEWS/EWS/TTS	Focused specifically on factors impacting use.
Study Design	Primary research	Systematic reviews Literature reviews Rapid reviews	Rapid review
	Qualitative Research studies Mixed methodology studies	Quantitative research studies or opinion papers	Question focuses on how and why – suitable for qualitative findings
	Peer reviewed studies	No-Peer review	Quality measure
	Published 2010-2021	Published before 2010	NEWS released 2012 but TTS recommended since 2007 Rapid review process
	English Language	Languages other than English	Researcher only fluent in English

Limits applied to the search are described above (Table 2.2) and were applied utilising the advanced search facility on search engines. Whilst adult patients did not feature in the search terms, results were narrowed utilising the limits on the search engines to include studies with data reported from ages 18+. Cochrane rapid review recommendations (Garritty *et al.*, 2021) cite the setting of eligibility criteria in their recommendations, placing higher emphasis on higher quality study designs (such as randomised controlled trials), but this was less applicable when searching for qualitative designs to support the research question for this review.

Databases utilised for the search were Academic Search Ultimate, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Medline. This was accompanied by a thorough search of the grey literature including Google Scholar

(followed up by relevant alerts) to identify relevant reports, conference papers and theses following the same inclusion and exclusion criteria. Forward and backward citation chasing was undertaken, reviewing the works cited by an author and checking for citation after publication.

Three hundred and sixty-five titles were identified, plus nine records through other sources including google scholar and conference papers. After removal of duplicates, 238 records were screened by a single reviewer with 73 removed based upon title and abstract screening. Of the 165 studies assessed for eligibility, a final 20 were included in the review: 14 qualitative and six mixed methods studies. Search results are shown in Figure 2.1 below.

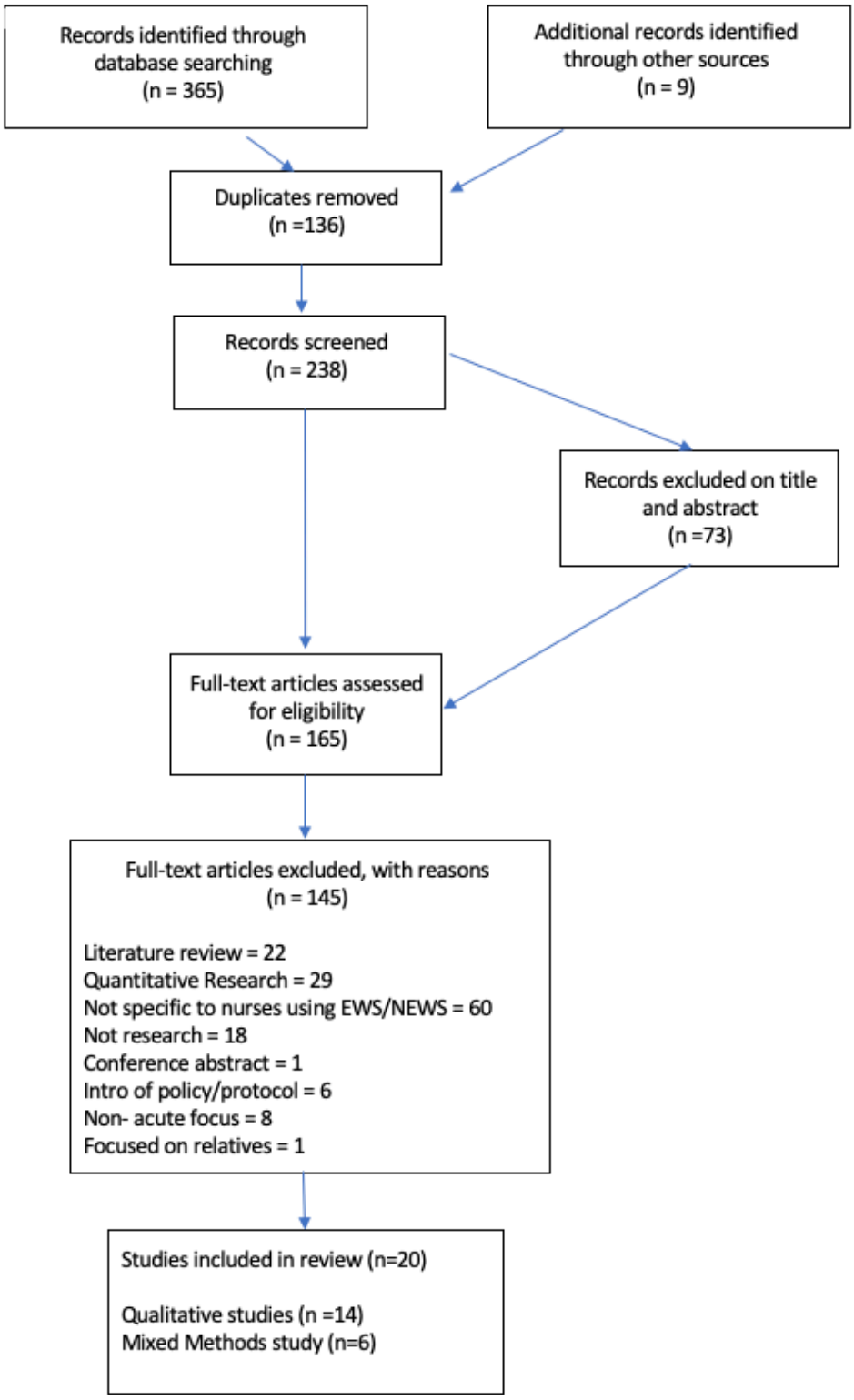


Figure 2.1 PRISMA flowchart of screening and assessment process

2.3.2 Quality appraisal

Critical appraisal of methodological quality was undertaken utilising the Critical Appraisal Skills Programme (CASP) tools (Critical Appraisal Skills Programme, 2019). Dibley *et al.* (2020) acknowledge the use of a standardised critical appraisal tool can ensure rigour in the critique of articles, enabling a critical assessment of the evidence for the phenomenon in question. Other critical appraisal tools were considered including the Joanna Briggs Institute (JBI) checklists (2016) and the Rapid Critical Appraisal Checklists (Melnyk and Fineout-Overholt, 2019). Whilst the JBI checklist was considered pragmatic with a series of ten questions similar to CASP, CASP (2019) was familiar to the researcher, endorsed by the Cochrane Qualitative and Implementation Methods Group (Long *et al.,* 2020), and provided a systematic approach to the appraisal process. Whilst CASP is the most frequently utilised critical appraisal tool it has been subject to criticism that it prioritises quantification of quality over content leading to some debate over interpretations of quality (Long *et al.,* 2020). This limitation of the tool was acknowledged, the critical appraisal process undertaken with transparency throughout.

To enhance the transparency, the CASP tool was used in conjunction with a Red, Amber, Green (RAG) rating scale (Table 2.3), similar to an approach taken by Bench *et al.* (2021). A RAG rating was allocated to each included study utilising the first nine scoreable questions included in the CASP qualitative tool. Each question was allocated a score based upon the response (Yes = Score 2, Unsure = Score 1, No = Score 0). An overall score was then calculated. This provided diagrammatic representation of the assessed quality to assist in the process of critical appraisal. The final 10th question in the tool was not included as it is more subjective in nature, perceived to increase the risk of bias (McDonagh *et al.*, 2013). Mixed methods studies were appraised using CASP with only the qualitative data, however, the whole study was reviewed to enable contextualisation of the qualitative arm of the study and in recognition that you cannot isolate the qualitative dimension in mixed methods approach.

Table 2.3 RAG rating critical appraisal criteria

RAG rating (Red, Amber, Green)	Score (out of 18)	Statement of Quality	Number of studies meeting this rating
	0-10	Low Quality	0
	11-15	Medium Quality	10
	16-18	High Quality	10

2.3.3 Data extraction

Data extracted included details of the publication, study design, sample, tool used (EWS, Modified Early Warning Score [MEWS], NEWS, TTS, VIEWS, or Hamilton Early Warning Score [HEWS]), findings, quality overview and limitations. Data extraction was performed by a single researcher leading to potential for errors and subjective interpretation of the findings. To minimise this, the researcher ensured familiarisation with the studies by undertaking the data extraction process multiple times. As suggested by the Cochrane rapid review recommendations (Garritty *et al.,* 2021) verification of judgement was obtained by a member of the doctoral supervisory team who also performed data extraction on a single paper. The data extraction table can be viewed in Appendix 2.

2.3.4 Data synthesis and analysis

Data were subjected to a process of thematic analysis using an inductive approach which allowed the narrative to emerge from the raw data itself (guided by Braun and Clarke, 2006), as outlined in Table 2.4. Thematic analysis seeks themes and patterns in the data, focusing on commonalities, differences, and relationships (Gibson and Brown, 2009) yet is subject to interpretation and criticism over clarity (Thomas and Harden, 2008). Steps taken to enhance clarity and minimise bias are discussed in 2.2.5. Results sections of qualitative studies are usually presented in themes so thematic analysis involved aggregating and comparing the findings from the separate studies.

Table 2.4 Thematic analysis (adapted from Braun and Clarke, 2006)

Step	
1	Familiarisation with the data
2	Generate initial codes
3	Development of categories and search for themes
4	Review themes
5	Define and name themes
6	Write up / producing the report

The first step involved engaging with the data, achieving immersion through independently reading and re-reading the studies, focusing on the findings and discussion sections. In step two, data were coded on a line-by-line basis, allowing the generation of initial codes. Some of these codes were formed of the themes that had been identified as part of the qualitative analysis in the paper, some were related to the text included within the themes. These initial codes helped to understand the data. A large number of codes were generated, which were then placed into categories by putting multiple codes together to enable sorting and giving some context before reaching the conceptualisation of themes. The process of reviewing themes was undertaken over many weeks and using many approaches – both manual and computer based and assisted. Whilst it is acknowledged that this process is subjective and open to interpretation, assistance was given by the supervisory team to guide decision-making processes and offer quality assurance (Xiao and Watson, 2019) throughout stages 4 and 5 in the review (Table 2.4) and definition of themes. A coding index example is provided (Appendix 3). The themes varied in size and context, and this is evident in the presentation of findings (Table 2.6).

2.3.5 Minimising bias

The structured approach taken to the literature review may not reflect the hermeneutic phenomenological approach engaged throughout the study which does not require the following of rules but acknowledge the engagement that takes place with the literature and the influences involved. (Dibley *et al.*, 2020). On reflection of this need for self-awareness, pre-conceptions and understandings have been explored at various stages of the research study. Engagement with the literature (including the grey literature) both to demonstrate the gaps in evidence and

throughout the interpretation stage have been central and reflected a backwards and forwards motion. This has been balanced alongside a thorough consideration of rigour in rapid reviews.

Rapid reviews can be criticised for not employing as much rigour as in systematic reviews and therefore being subject to a greater degree of bias (Khangura *et al.,* 2012). Limitations of the rapid review approach are widely cited in the literature with the potential for bias being the most significant limitation acknowledged (Featherstone *et al.,* 2015; Tricco *et al.,* 2015; O'Leary *et al.,* 2016; Hartling *et al.,* 2017). For example, screening citations by a single researcher increases the potential for sampling bias (Tricco *et al.,* 2015), compared to a systematic review, which is usually conducted by a minimum of two reviewers independently (Sutton *et al.,* 2019). In addition, Ganann *et al.* (2010) highlight the risk of publication bias as a result of shortened timeframes and less systematic search processes employed in rapid reviews.

Multiple measures were employed to minimise the potential for both methodological and sampling bias within this literature review. First, the application of Cochrane guidance (Table 2.1) enhanced transparency of the stages of the review, meeting the need for clearer guidance suggested by Ganann *et al*. (2010). For example, in the setting of eligibility criteria, application of the PICO tool (Higgins and Thomas, 2019) and details of the limitations applied to the search strategy offered clarity and minimised the risk of bias in the selection of studies offering transparency in the approach taken. Data extraction was undertaken by a single reviewer with the correctness and completeness of a sample of the data verified independently by each member of the supervisory team. There were minimal differences in appraisals, but these were discussed within the team. The application of the CASP RAG rating critical appraisal criteria (Table 2.3) formed an excellent basis for these discussions and was utilised as a tool to minimise risk of bias as suggested in the Cochrane guidance. As suggested by O'Leary *et al.* (2016) the process of doctoral supervision with subject and methodological experts further enabled application of best practice throughout the review process enhancing validity of results.

2.4 Results

Full details of the 20 included studies can be seen in Appendix 2. Six of the studies employed mixed methods (McDonnell *et al*., 2013; Stewart *et al.,* 2014; Bunkenborg

at al., 2016; Smith and Aitken, 2016; Foley and Dowling, 2019; Lavoie *et al*., 2020). The remaining 14 studies used a qualitative methodology. The mixed method studies each combined one qualitative and one quantitative approach, apart from Foley and Dowling (2019) who undertook case study research (non-participant observation; semi structured interviews; documentary analysis). Data were extracted from both arms of the studies (Appendix 2) in recognition that they could not be viewed alone, but only qualitative data were included in the CASP appraisal and the analysis steps. Two of the mixed methods studies utilised focus groups (Stewart *et al.,* 2014; Lavoie *et al.,* 2020), two undertook semi structured interviews (McDonnell *et al.,* 2013; Bunkenborg *at al.,* 2016) and one self-reported questionnaires with open questions which collected qualitative data (Smith and Aitken, 2016).

In the purely qualitative studies (n=14), interviews were the most frequently used standalone data collection tool (n=11). One study combined both observation and interviews (Mackintosh *et al*., 2014). Focus groups only featured in one of the purely qualitative studies (Stafseth *et al*., 2016); as did observation as a standalone data collection tool (Smith *et al*., 2020).

The majority of studies (n=9) were conducted within the U.K. Other locations included Denmark (Petersen *et al.,* 2017), Republic of Ireland (Foley and Dowling, 2019), Norway (Stafseth *et al.,* 2016; Jensen *et al.,* 2019), Sweden (Bunkenborg *et al*., 2016), US (Stewart *et al*., 2014; Burns *et al*., 2018) Canada (Bigham *et al*., 2019; Lavoie *et al*., 2020), New Zealand (Ansell *et al*., 2015), and Singapore (Chua *et al*., 2019). None of the studies offered multi-country data, most likely because of the various types of early warning system used.

Studies included a variety of clinical areas and referred to the wards under study as ‘acute’, ‘medical’ or ‘surgical’. Only one study looked exclusively at a single clinical area - the Emergency Department (Bigham *et al.,* 2019). Two studies included cardiac speciality areas (Burns *et al.,* 2018; Chua *et al.,* 2019). Other wards included emergency admissions (Bunkenborg *et al.,* 2016), geriatric (Chua *et al.,* 2019; Hope *et al.,* 2019), rehabilitation (Chua *et al.,* 2019; Hope *et al.,* 2019), oncology (Hope *et al.,* 2019), rheumatology (Jensen *et al.,* 2019), gynaecology (McDonnell *et al.,* 2013; Hope *et al.,* 2019;), stroke (McDonnell *et al.,* 2013) and trauma/orthopaedics (Hope *et al.,* 2019).

Sample characteristics varied across studies. The largest proportion of studies focused on Registered Nurses (n=8). One study (Bunkenborg *et al.,* 2016) included only nurse managers. Enrolled nurses only featured in one study (Chua *et al.,* 2019), which may be as a result of these roles being phased out in many countries. The Licensed Practical Nurse (LPN) is an equivalent role in the U.S. and Canada however did not feature in any of the studies included. Whilst Health Care Assistants (HCAs) were included in eight of the studies, no study focused solely on this part of the nursing workforce. A mixed sample including medical staff featured in two of the study samples (Mackintosh *et al*., 2014; Bigham *et al.,* 2019). Mackintosh *et al*., (2014) also included a lawyer in their sample. Only one study included members of the CCOT, alongside ward-based nurses (Endacott and Donohue, 2010).

In terms of Early Warning Systems, NEWS was studied by Smith and Aitken (2016); Jensen *et al*. (2019); Smith *et al*. (2020); and Smith *et al*. (2021). Of the 16 remaining studies, one referred to the use of a TTS more generally (McDonnell *et al*., 2013), one to the Hamilton EWS (Bigham *et al*., 2019) and five to MEWS (Endacott and Donohue, 2010; Stewart *et al*., 2014; Bunkenborg *et al*., 2016; Stafseth *et al*., 2016; Dalton *et al*., 2018). The remaining studies referred to EWS as a generic term. These EWS all pre-date NEWS and were the precursor for the development of NEWS as a standardised approach and hence hold relevance to this study. It is noted that 22 validated EWS were reported across 84 studies in a recent systematic review (Gerry *et al*., 2020) however they have not all been included in this literature review as a result of the screening processes and inclusion/exclusion criteria described above.

All 20 studies were assessed to be of adequate quality using the RAG rating (see Appendix 2), classified as either amber or green, with an even split between Green and Amber.

Table 2.5 Overall CASP RAG rating

No	Question	Total scores
1	Was there a clear statement of the aims of the research?	39
2	Is a qualitative methodology appropriate?	39
3	Was the research design appropriate to address the aims of the research?	35
4	Was the recruitment strategy appropriate to the aims of the research?	32
5	Was the data collected in a way that addressed the research issue?	37
6	Has the relationship between researcher and participants been adequately considered?	13
7	Have ethical issues been taken into consideration?	32
8	Was the data analysis sufficiently rigorous?	33
9	Is there a clear statement of findings?	40

The most apparent weakness in the studies that emerged from the CASP critical appraisal exercise (Table 2.5) was the consideration of the relationship between the researcher(s) and the participant(s) with only six of the 20 studies achieving a 'Yes'. Thirteen studies had not included this in their paper; one had partially included it. This is a surprising result considering the qualitative nature of the studies included and the need for the researcher to be explicit in their role and position and its compatibility with the research orientation (Baillie, 2014). Equally the authors may have been restricted in the word limit and chose to exclude this information. Four of the studies (Endacott and Donohue, 2010; Stewart *et al.,* 2014; Petersen *et al.,* 2017; Bigham *et al.,* 2019) did not include any details of ethical approval obtained for their study. Nineteen of the studies included details on their recruitment strategy, with one excluding this (Petersen *et al.,* 2017). Descriptions of the recruitment in five of the studies were limited with lack of description as to how participants were recruited (Bigham *et al.,* 2019), lack of justification for the selection of participants (Bunkenborg *et al.,* 2016), lack of description of sampling criteria (Mackintosh *et al.,* 2014; Stewart *et al.,* 2014; Lavoie *et al.,* 2020). Five studies scored 1 or 0 for their

lack of rigour in data analysis reporting (Endacott and Donohue, 2010; Mackintosh *et al*., 2014; Ansell *et al.,* 2015; Bunkenborg *et al.,* 2016; Lavoie *et al.,* 2020). The appropriateness of the research design was questionable in four of the studies where it was felt there would be a more suitable approach to address the aims of the research (Bunkenborg *et al.,* 2016; Stafseth *et al.,* (2016); Bigham *et al.,* 2019; Ede *et al*., 2020).

Despite the 20 studies included being peer-reviewed undertaking RAG rating critical appraisal using the CASP tool was felt to strengthen the rapid review through thorough exploration of the quality and strength of the evidence. All data were considered equally irrespective of the methodological quality, however heightened awareness of the trustworthiness of the study informed the perceived reliability of the study and its findings. Use of the tool in this way offered both comparability and transparency in the process of critical appraisal.

2.5 Thematic findings

Five themes emerged from the thematic analysis. A summary of themes, categories and location in the studies is presented in table 2.6.

Table 2.6 Summary of literature review findings

Theme and categories	Studies included in theme
Theme 1: Vital sign monitoring for EWS (2.5.1) • Delegation of vital sign monitoring to non-Registered Nurses • Accuracy and poor practice of vital signs measurement and recording • Compliance and omission of vital signs	Mackintosh *et al.* (2014) Ansell *et al.* (2015) Smith and Aitken (2016) Bigham *et al.* (2019) Chua *et al.* (2019) Ede *et al.* (2020) Smith *et al.* (2020) Smith *et al.* (2021)
Theme 2: Compliance with EWS (2.5.2) • Organisational culture drives compliance • Compliance is impacted by time of the day and workload	Mackintosh *et al.* (2014) Petersen *et al.* (2017) Burns *et al.* (2018) Hope et al. (2019) Ede *et al.* (2020) Smith *et al.* (2021)

Theme 3: The impact of technology (2.5.3) • Accuracy and technology • Nurses' perceptions of technology	Mackintosh *et al.* (2014) Ansell *et al*. (2015) Foley and Dowling (2019) Hope *et al.* (2019) Smith *et al.* (2020) Smith *et al.* (2021)
Theme 4: EWS and escalation (2.5.4) • EWS trigger enables escalation • The rapid response team • Escalation without a triggering EWS • Over-triggering patients • Relaying responsibility through escalation	Endacott & Donohue (2010) McDonnell *et al.* (2013) Mackintosh *et al.* (2014) Stewart *et al.* (2014) Stafseth *et al.* (2016) Dalton *et al.* (2018) Foley and Dowling (2019) Jensen *et al.* (2019) Smith *et al.* (2021)
Theme 5: Nurses' clinical judgement, competence, and critical thinking (2.5.5) • Competence in nursing practice • Observations outside of EWS • The imbalance of EWS and clinical judgement • The role of intuition • Impact of nurses' experience	Endacott & Donohue (2010) McDonnell *et al.* (2012) Mackintosh *et al.* (2014) Stewart *et al.* (2014) Ansell *et al.* (2015) Burns *et al.* (2018) Petersen *et al.* (2017) Dalton *et al.* (2018) Chua *et al.* (2019) Foley and Dowling (2019) Jensen *et al.* (2019) Ede *et al.* (2020) Lavoie *et al.* (2020) Smith *et al.* (2021)

2.5.1 Vital sign monitoring for EWS

This theme relates to the practice of vital sign monitoring as a first step in undertaking EWS and included three categories (Table 2.6).

Delegation of vital sign monitoring to non-Registered Nurses

Six studies analysed the role of different nursing team members in relation to the use of EWS and considered how this influenced clinical practice. Whilst the make-up of nursing teams vary globally, similar findings were reported with regards to the delegation of vital signs monitoring to non-Registered Nurses, such as HCAs or ENs.

Whilst RNs retained ultimate accountability, direct patient care, such as vital sign monitoring, was more frequently delegated by RNs to other members of the nursing team with a shift of responsibility for recognition and reporting of deterioration. Five of the studies (Mackintosh *et al.,* 2014; Smith and Aitken, 2016; Ede *et al.,* 2020; Smith *et al.,* 2020; Smith *et al.,* 2021) reported that routine monitoring of vital signs was a role primarily undertaken by HCAs, mostly using electronic monitoring equipment, with one study reporting this was undertaken by ENs (Chua *et al.,* 2019). Irrespective of the receiver of the delegation there was a heavy reliance on the non-RN workforce for this task with associated implications for clinical practice, namely in the way that vital signs were taken, recorded, and reported.

Vital sign recording was viewed as 'dirty work' delegated to HCAs (Mackintosh *et al.,* 2014). The introduction of EWS was perceived as legitimising this division of labour and offering a safety net to nurses delegating the task to their subordinates (Mackintosh *et al.,* 2014). Ede *et al*. (2020) found HCAs did 'bulk' observation rounds as opposed to RNs, as a consequence delaying reporting to RNs. RNs were observed undertaking routine monitoring only in limited circumstances, such as staff shortages (Smith *et al.,* 2020; Smith *et al.,* 2021) and when they did this was focused on their own patients rather than undertaking bulk rounds.

Escalation of vital signs was highlighted as a concern across studies with Smith *et al*. (2020) finding that HCAs neglected to escalate abnormal vital signs and elevated NEWS to the responsible RN. The reason for lack of escalation was not clear however this may be as a result of their concerns being ignored (Smith *et al.*, 2020; Smith *et al.,* 2021). When an HCA did escalate an elevated NEWS, RNs were

observed to re-delegate additional monitoring back to HCAs or student nurses rather than assess the patient themselves. Similarly, student nurses expressed unease at RNs dismissing their concerns about patients, leaving the student nurse to continue to undertake monitoring without further action or understanding of the situation (Smith *et al.,* 2021). Furthermore, when an RN did listen but not take action, they did not explain their rationale for such lack of action when presented with concern over an abnormality of vital signs. This caused further frustration for the student nurse who looked at the RN for leadership. Questions over the lack of direction and supervision from RNs was raised as an issue (Chua *et al.,* 2019) with RNs being more focused on administrative and co-ordination duties rather than interacting with the patient for further assessment (Smith *et al.,* 2020; Smith *et al.,* 2021). Novice nurses preferred to seek help from experienced ENs rather than the RNs, further reinforcing the need for the leadership role being held by a credible and trustworthy nurse viewed as an experienced and knowledgeable resource (Smith and Aitken, 2016).

The studies highlight many conflicts and challenges around delegation including a clear disconnect between staff undertaking monitoring and staff responsible for taking action. Barriers in the communication of abnormal NEWS and the subsequent conflict to the RNs may result in failure to take appropriate action.

Accuracy and poor practice of vital signs measurement and recording

The issue around inaccuracy of vital sign measurement was explored by three studies (Ansell *et al.,* 2015; Smith *et al.,* 2020; Smith *et al.,* 2021). In the U.K. Smith *et al*.'s (2020, 2021) ethnographic study (two phases are currently reported), applied the five criteria of Presseau *et al.*'s (2019) behaviour specification framework to define and specify expected behaviours. The five key moments explored were routine monitoring of vital signs; responsive monitoring; recording vital signs and calculating the NEWS; escalation within the ward-based nursing team and escalation outside of the ward-based nursing team. Smith *et al*. (2020), using observation as a data collection tool, reported inconsistencies in accuracy in undertaking and reporting respiratory rate (RR). In the study, the researcher independently recorded the RR within 15 mins of its completion by the member of staff. There were differences in RR between researcher and nursing staff in three quarters of cases (n=37). The researcher RR being higher in 76% (n=28) of these cases. This directly impacted the recorded NEWS in 65% (n=24) of cases.

Inaccurately calculated RR was further supported by the findings reported from semi-structured interviews (Smith *et al.,* 2021) with participants lacking knowledge of how to accurately measure RR or the importance of an abnormal respiratory rate as an early sign of deterioration, favouring other vital signs such as blood pressure. These findings call into question the competence of the nursing team in calculation of this vital sign and the potential impact on NEWS efficacy. Inaccurate RR measurement and recording was observed in both RNs and HCAs. The authors suggest two explanations for this unexpected behaviour which include a lack of skill in obtaining the measurement or a lack of knowledge of its importance. It is plausible that the RR changed in the 15 mins delay between the measurements, however, is unlikely to have done so in 37 cases. An assumption could be made that the researcher, an experienced nurse, specialised within the sphere of deteriorating patients was likely to have high accuracy in measuring and recording vital signs. However, this will remain questionable without a definitive answer available from this study. Nonetheless, an inaccurate or falsified RR is a potential patient safety risk with implications for the process of doing NEWS. Poor practice in the measurement of RR was also reported by Ansell *et al.* (2015) with participants through interviews suggesting that RR was not accurately measured or falsified. RNs reported that they had observed their colleagues taking a RR without a watch or device to time the required one minute but recording the result.

In addition to the reported issues around RR, Smith *et al.* (2020) also reported poor practice with regards to measurement of other vital signs. One example being the recording of oxygen saturation measurement with finger probes applied to the patient's ear in response to an alarm when placing it on the finger. Being a U.K. based study, this finding is an important consideration and highly relevant to the present study exploring nurses' use of NEWS. Other instances of poor practice included omission of the correct time of recording when documenting vital signs and monitoring oxygen saturations on an arm being used to monitor blood pressure via a cuff, which directly impacts on blood flow essential for measuring blood oxygen.

Compliance and omission of vital signs

Compliance with the vital sign recording required for EWS was reported in three studies. Nurse participants confirmed through interviews (Ansell *et al.,* 2015) that RR was not recorded 100% of the time. Whilst participants believed that the practice of

RR measurement and recording had improved with EWS, they felt that there were factors which prevented optimum compliance, such as lack of automatised devices for RR and a lack of understanding for why RR was necessary. Ansell *et al.* (2015) put this poor compliance down to the move to electronic recording equipment which had changed the practice of assessment, removing the need for the RN to touch the patient. Similarly in interviews undertaken by Bigham *et al.* (2019) participants self-reported high vital sign accuracy, however also admitted that RR and temperature may have been estimated in instances where there was no clinical concern. The admission of this occasional behaviour was not viewed as the result of a mistake or as the result of poor competency in vital sign recording, but as a result of those vital signs being undervalued with regards to the ongoing care of those patients. Overall, participants believed that Emergency Department (ED) staff were experts in identification of sepsis and this 'expert' status was more important than HEWS. Bigham *et al.*'s (2019) study included only five participants that were nurses. Data obtained from the nurses cannot be separated from those of the Doctors yet did provide evidence of the impact of EWS in relation to use by nurses. Whilst this study met the inclusion/exclusion criteria for the review, the way data are reported limits its value.

2.5.2 Compliance with EWS

Organisational culture drives compliance

Compliance with using EWS was reported in eight studies (Endacott and Donohue, 2010; Mackintosh *et al*., 2014; Petersen *et al.,* 2017; Burns *et al.,* 2018; Dalton *et al.,* 2018; Hope *et al.,* 2019; Ede *et al.,* 2020; Smith *et al.,* 2021) with mixed findings.

EWS shifted the culture from reactive to proactive, reflecting a positive change in compliance with the visual cues of EWS enhancing staff accountability for completing vital sign data entry. (Burns *et al.,* 2018). The use of electronic EWS allowed managers to directly measure performance (Hope *et al.,* 2019) in turn making nurses more accountable for their compliance and actions through use of a colour coded system which could be viewed on every computer by all staff members (Burns *et al.*, 2019). Improved communication and collaboration were also reported with regards to the impact of the tool on organisational culture (Burns *et al.,* 2018) which participants believed would lead to improved recognition and response.

Organisational culture focused on measuring ward performance through electronic EWS impacted negatively by prioritising compliance measures and introducing ward-level targets (Hope *et al.,* 2019). Use of EWS data to measure ward performance placed significant weight driving compliance with data presented at high level meetings and compliance audits, results publicly displayed in ward corridors (Mackintosh *et al., 2*014). Competition was incorporated between wards based on compliance targets. Participants reported pressure from managers to achieve optimum ward performance through the system, with a level of compliance that could be readily monitored through the electronic system in real-time (Hope *et al.,* 2019).

EWS breaches were explored through root cause analysis, reportedly making nurses cautious about using their autonomy (Dalton *et al*., 2018) leading to a perceived culture of blame. Nurses were reported to circumvent organisational protocol at times (Endacott and Donohue, 2010) and found workarounds and loopholes in the system that avoided their ward being penalised and prevented alarms triggered by manual processes (Hope *et al*., 2019). EWS audits are sanctioned by NHS England and used in the U.K. to measure performance. Such audits may be viewed as a tick box exercise to meet organisational requirements, rather than patient centred approach. This approach was observed by Ede *et al.* (2020) who through non-participant observation reported the nursing team to be undertaking observations in a tokenistic manner, to 'tick a box' on some patients where they did not believe the recording was necessary.

Compliance is impacted by time of the day and workload

As discussed, compliance is partly driven by the introduction of organisational compliance measures associated with targets. Irrespective of compliance being a significant quality measure for some organisations, fluctuations in compliance were recorded at times. For example, nurses both in the U.K. and Denmark believed that EWS adherence had an acceptable lower priority on night shifts or during busy periods when nurses lacked time (Mackintosh *et al.,* 2014; Petersen *et al*., 2017). Furthermore, these studies suggest that during busy periods nurses favour paper recording and avoid transferring to electronic systems as the task is viewed as bureaucratic. Night-time was highlighted as a period where EWS compliance was low in Petersen *et al*. (2017) and Smith *et al.* (2021) with nurses admitting that it was acceptable to omit monitoring if the patient was asleep and appeared visually well. Nurses reportedly observed patients from a distance and most felt confident in their

ability to recognise normal sleep versus unconsciousness (Petersen *et al*., 2017). There was consensus upon nurses that sleep was more important than monitoring. In Smith *et al*.'s (2021) study participants reported a poorer response to escalation during the night, perceiving that patients experienced longer delays before a response was obtained. Whilst poor adherence to EWS clinical response protocol undermines the essence of the tool, the likely reasons for this are multi-faceted and may be based upon user values, beliefs, and judgements.

2.5.3 The impact of technology

Technological enhancements in EWS have rapidly evolved over the past ten years and this featured in six of the studies (Mackintosh *et al.,* 2014; Ansell *et al.,* 2015; Foley and Dowling, 2019; Hope *et al.,* 2019; Smith *et al.,* 2020; Smith *et al.,* 2021). The introduction of handheld devices for monitoring EWS featured in both Hope *et al*.'s (2019) and Smith *et al*.'s (2020) studies. Whilst focused mainly on compliance, Hope *et al*. (2019) reported one part of a wider study exploring variation in vital signs observations following introduction of handheld devices for EWS monitoring. The system required the nurse to input a full set of vital signs, which based upon a programmed algorithm automatically calculated and displayed the EWS and required actions on screen.

Accuracy and technology

Enhanced accuracy whilst using electronic devices was reported by Smith *et al.* (2020) whose ethnographic study coincided with the transition from a paper-based NEWS to an electronic version. This study is unique in offering comparative data on the two versions of NEWS, collecting data over a 2-month period through observation of clinical staff (RNs and HCAs), rather than gathering staff perspectives on the transition to electronic EWS. The paper reported more inaccuracies and omissions when using paper NEWS charts, compared to electronic devices. This is an expected finding, with the paper version reliant on nurses for calculation of EWS and therefore subject to calculation errors. In addition, electronic devices did not allow for omissions in vital sign data. Smith *et al.* (2020) also noted that electronic devices for EWS prevented nurses from falsely documenting the time NEWS was completed to match the required time, a practice observed in the use of paper charts. This finding relates back to the falsification of the RR discussed in 2.5.2 with fraudulent recording of vital signs used to demonstrate compliance reflecting a potential fear of reprisal for not following NEWS clinical response protocol.

Nurses' engagement with technology

Staff reported mixed opinions with regards to the use of handheld devices in Smith *et al.* (2021). Whilst some staff supported the ease of use of devices, others felt they were not user friendly. Staff reported reverting to desktop computers or paper versions of NEWS when they faced difficulties with the hand-held devices. Whilst the use of handheld devices has changed the recording of vital signs, the recording stage continues to be reliant on nursing staff undertaking the vital signs and inputting data directly on to the device with minimal delay. Smith *et al*. (2020) noted a variability on the recording of vital signs with some HCAs entering the results directly into an electronic device, whereas others were writing them down and entering them into the system later, causing delays in recording. A similar finding was observed by Mackintosh *et al.* (2014) with RNs writing their recording on paper, requesting HCAs to enter it into the system. Reversion to previous styles of documenting NEWS continued to be an attractive alternative but may be as a result of the reluctance to embrace changes and recent transition to electronic NEWS or reflect a lack of familiarity with the new system.

2.5.4 EWS and escalation

Getting help, referred to as escalation, sits in the afferent arm of EWS (Figure 1.1), the step following patient monitoring and assessment. This stage of getting help is core in management of deterioration and study findings reveal both positive and negative aspects of EWS during escalation. Mackintosh *et al.* (2014) identified that EWS both enabled and constrained escalation.

EWS trigger facilitates escalation

In four studies (McDonnell *et al.,* 2013; Stewart *et al.,* 2014; Dalton *et al.,* 2018; Jensen *et al.,* 2019) nurses discussed the impact of EWS on escalation and the ability of nurses to successfully escalate a deteriorating patient and obtain an appropriate response to a EWS trigger. EWS placed a weighting on their call for help, provided nurses with power to achieve a response, structure to their conversations, more so than their own concerns or worries that often led to failed escalation. Dalton *et al.* (2018) referred to MEWS as a 'vehicle' to successful escalation, with MEWS guaranteeing a patient review when a patient triggered a relevant score. Similarly, McDonnell *et al.* (2013) reported that the introduction of a TTS helped with escalation with impact on nurse confidence as it offered clearer

delivery of objective information and enabled medical staff to prioritise based on the score. Confidence in escalation was also highlighted by Jensen *et al.* (2019) who added that EWS made nurses feel less alone in their decision making giving them confidence in the wider professional community. Stewart *et al.* (2014) suggested MEWS was also highly valued as an interdisciplinary communication tool in terms of conveying a sense of urgency to physicians.

The rapid response team

The MET or CCOT play a key role in the receipt of escalation as a result of EWS. Stafseth *et al.* (2016) was the only study that focused upon the introduction of a new outreach service - the Mobile Intensive Care Nurse (MICN) in Norway in relation to escalation using an EWS tool. Nurses in the study reported feeling more comfortable obtaining help when referring to the EWS trigger when escalating. Whilst nurses appeared comfortable in escalating to a nurse (Stafseth *et al.,* 2016), escalation to a doctor did not reflect the same emotions (Petersen *et al.*, 2017). Nurses spoke of negative reactions to escalation, regarding contributions from junior doctors as unhelpful but placing higher value on the voice of their senior nurses with whom they had more confidence and experience (Petersen *et al.*, 2017). Nurses in Petersen *et al*.' s (2017) study also expressed concerned at disrupting doctors with calls and were reluctant to call the MET as the clinical response protocol demanded. This finding may be directly related to interpersonal relationships with the MET with nurses reporting based on previous encounters, citing intimidation and belittling. This is the only study that reported such findings, and therefore they cannot be applied broadly as they may be as a result of personalities or organisational culture and hierarchy. However, it does highlight the importance of considering the constitution of response teams. For example, an MET is generally led by physicians, and CCOT by nurses (Fons-Sonderskov *et al.,* 2022). Exploration of these differences and their impact on nurse escalation in EWS warrants further investigation. In terms of how nurses view the CCOT, ward staff reported several positive attributes including the provision of a calm and reassuring presence to the nursing team and patient, providing an action plan, and taking charge of the situation (Endacott and Donohue, 2010). Whilst this was the view of the ward staff, this vision of taking over the situation was not shared by the members of the CCOT who perceived their role was in an advisory capacity rather than adopting responsibility.

Over-triggering patients

Frequently in the reviewed studies, nurses referred to the difficulty in caring for a patient who constantly triggered (usually a patient with a chronic condition) and the difficulty in escalating without an elevated score to doctors (Jensen *et al.,* 2019). As discussed in Chapter 1, NEWS2 includes a sub chart in the form of an alternative oxygenation scale which is designed to help to better tailor escalation to baseline oxygen levels in those with respiratory disease (Inada-Kim and Nsetebu, 2018). This process of transition to the sub-chart must be initiated by a doctor. Two studies highlight that this process was not being followed, with questions as to the authority to make these decisions (Foley and Dowling, 2019; Jensen *et al.,* 2019). Delegation of responsibility for parameter adjustment by senior medical personnel who held ultimate responsibility for this action to junior doctors who were not permitted to adjust parameters further complicated this process (Foley and Dowling., 2019) Stewart *et al.'s* (2014) study participants reported being frustrated at the inability of MEWS to be tailored to make allowances for patients who normally had vital sign measurements sitting outside of pre-determined thresholds in the system. They cited this as a major barrier to the effective use of MEWS and identified it as the single most important improvement that could be made to the system. This study was reported in 2014, EWSs have undergone further development since this point, and this may no longer be a system issue.

Relaying responsibility through escalation

Once escalation has occurred, nurses report feeling able to abdicate their responsibility towards the patient resulting in them suspending their role as autonomous clinical practitioners instead becoming order followers (Endacott and Donohue, 2010; Dalton *et al.,* 2018; Smith *et al.,* 2021). Data suggest that EWS tools and clinical response protocols provide nurses not only with power and justification to escalate, but also a vehicle to absolve nurses from responsibility for the patient (Smith *et al.,* 2021). Nurses can relay the responsibility to someone senior as a result of the clinical response protocol. Findings from one study suggest that upon arrival of the Outreach team, nurses revert to task allocation and performance, taking instructions from the CCOT whilst passing overall responsibility for decision making to them (Endacott and Donohue, 2010). Nurses themselves reported a sense of relief once leadership was in place through the CCOT. Nurses saw themselves as facilitators of care in this situation, rather than autonomous experts who could make decisions and maintain their accountability for the patients.

This passing of responsibility was mirrored in a study by Dalton *et al*. (2018) who suggested that once the medical team arrived, nurses would follow the doctor's decision, regardless of seniority. This resulted in a shifting of responsibility to the medical team with nurses stepping down as a result, reflecting a passing over responsibility mentality minimising the implication for the nurses of potential failure. Nurses appeared to 'buy in' to this culture reporting that EWS both aided their clinical decision making as well as their ability to relinquish their responsibility to other healthcare professionals when escalation was required as a result of the score.

2.5.5 Nurses' clinical judgement, competence, and critical thinking

A common thread in the studies is over the questionable competence of nurses in the identification and management of deterioration. Examples of lack of competence in practice around the use of EWS that have been discussed in earlier sections include competence in delegation (Smith and Aitken, 2016; Chua et al., 2019; Smith et al., 2020; Smith et al., 2021); omission of vital signs (Ansell *et al.,* 2015; Bigham *et al.,* 2019; Smith *et al.,* 2020; Smith *et al.,* 2021); poor practice in vital sign (Smith *et al.,* 2020; Smith *et al.,* 2021); EWS calculation errors (Smith *et al.,* 2020; Smith *et al.,* 2021); EWS compliance (Ansell *et al.,* 2015; Bigham *et al.,* 2019; Hope *et al.,* 2019; Smith *et al.,* 2020; Smith *et al.,* 2021); falsification of documentation (Endacott and Donohue, 2010; Smith *et al.,* 2021) and ignoring concerns of colleagues (Smith and Aitken, 2016; Chua *et al.,* 2019; Smith *et al.,* 2020; Smith *et al.,* 2021).

Alongside this, concerns are reported around the ability of nurses to escalate effectively outside of EWS. Nurses themselves report challenges in escalating patients with a low EWS as they felt unable to provide a compelling rationale (Dalton *et al*., 2018) which was confirmed by the CCOT as responders to the escalation. CCOT report that nurses' lack of evidence and knowledge of the patient during escalation was concerning, and that MEWS had not improved the quality of information received as expected (Endacott and Donohue, 2010). Similarly, Foley and Dowling (2019) noted that nurses were often prompted for more information by doctors during escalation. Whilst this may be related to nurses' confidence in their skills and ability it may also be as a result of learned behaviour and previous experiences with nurses being reported as 'over-reactive' when escalating based

upon their recognition of subtle changes in patients, rather than a triggering EWS (Mackintosh *et al.,* 2014).

Observations outside of EWS

Whilst RNs were reported as dismissive to concerns and escalation from their non-registered colleagues (Smith and Aitken, 2016; Chua *et al.,* 2019; Smith *et al.,* 2020; Smith *et al.,* 2021), and quick to relinquish responsibility through escalation on the basis of the EWS clinical response protocol (Endacott and Donohue 2010; Dalton *et al.,* 2018; Smith *et al.,* 2020; Smith *et al.,* 2021). EWS was reported to be a trigger for nurses to pursue a line of investigation as to the underlying cause (Burns *et al.*, 2018). These included visual assessment (Endacott and Donohue, 2010) with nurses reporting changes in colour, breathing and consciousness to the CCOT, however the CCOT in contrast suggested that nurses were poor in reporting of early physiological signs to them. Changes in patient behaviours, alongside visual cues that signified a deterioration were reported by Dalton *et al*. (2018). The concept of 'knowing the patient' was highlighted by nurses as being important (Chua *et al.,* 2019) with regards to assessment outside of EWS and in relation to knowledge about not only the patient's clinical status but also their usual behaviours and patterns of response. This applied to both ENs and RNs. Nurses described that the knowledge of the patient would prompt them to recognise deterioration prior to any changes to their physiological signs. Similar findings were reported by Mackintosh *et al*. (2014) but in relation to HCAs who were often the first person to detect subtle changes before these were reflected in the EWS. These findings contradict others (Endacott and Donohue, 2010; Foley and Dowling, 2019) that nurses do not know their patients when escalating and therefore cannot offer a rationale beyond EWS when seeking advice.

The imbalance of EWS and clinical judgement

Most studies (n=15) with five exceptions (Bunkenborg *et al*., 2016; Smith and Aitken, 2016; Bigham *et al*., 2019; Hope *et al.*, 2019; Smith *et al.,* 2020) proposed an imbalance existed between the use of EWS, clinical judgement and decision-making. Stewart *et al*. (2014) reported a heavy reliance on the accuracy of the score which led more senior nurses to express concern over reliance on a number rather than assessment skills to identify patient deterioration, whereas other studies suggested nurses were not reliant on the score (Burns *et al.*, 2018; Dalton *et al.,* 2018; Ede *et al.,* 2020) and at times nurses falsified EWS indicating lack of value and reliance on

the tool for their clinical practice (Ansell *et al.,* 2015; Bigham *et al.,* 2019; Smith *et al.,* 2020; Smith *et al*., 2021).

Conflicts between clinical judgement and EWS were cited by Foley and Dowling (2019) and Ede *et al*. (2020) with the latter suggesting that EWS led nurses to hesitate in their clinical decision-making when their existing knowledge or intuition conflicted with the clinical response protocol. Foley and Dowling (2019) in their mixed methods study reported that nurses would delay decision-making when the EWS conflicted with their intuition, suggesting the rigidity of the clinical response protocol did not consider their experience or their scope or make allowances for their own clinical judgement. Both single centre studies reported similar findings, using similar methodologies through the use of observation and interviews as data collection tools, both highlighting generalisability in their study limitations. Foley and Dowling (2019) undertook their study in a single acute, short stay ward (15 beds) in Ireland, compared to Ede *et al.* (2020) who conducted a larger service evaluation across 12 medical and surgical wards in an NHS hospital. EWS had been introduced 5 years prior to the study in Ireland and was most likely a EWS tool specific to Ireland and therefore not the same as the EWS in the study by Ede *et al.* (2020), with different guidelines and differences in the healthcare services across the two countries. These points are important in considering the findings and their applicability to this study based in an NHS Hospital in the U.K.

Foley and Dowling (2019) also suggested that, in these cases, nurses followed the protocol rigidly unlike findings from other studies (Endacott and Donohue, 2010) that proposed that nurses circumvented the clinical response protocol rather than following it. This conflict of findings may reflect a change in how compliance was perceived and monitored, with increased impetus on compliance towards the end of the 2010s (see 2.5.2). Using case study methodology, Foley and Dowling (2019) were also able to observe nurses in situations where EWS triggered the need for medical review (total hours of observation = 55hrs) and observed nurses delaying escalation, using their clinical decision-making to undertake actions without escalating. Actions were based upon their knowledge and skills, including oxygen administration or prescribed medication with nurses evaluating its effectiveness considering before escalation (Ede *et al.,* 2020). Similar findings were reported by Stewart *et al*. (2014) revealing that MEWS did not always trigger escalation or rapid response activation but further action including assessment of the patient was undertaken first.

The role of intuition

Intuition, confidence, and experience were linked to the extent to which the EWS contributed to clinical decision making. Five of the reviewed studies referred to intuition with regards to the use of EWS by nurses (McDonnell *et al.,* 2013; Petersen *et al.*, 2017; Dalton *et al.*, 2018; Jensen *et al., 2*019; Lavoie *et al.*, 2020). Petersen *et al.* (2017) referred to the role of intuition in clinical decision-making, suggesting that nurses believed that gut feeling was the driver for increased monitoring, however the researchers suggested that this decision was more driven by clinical and diagnostic cues rather than a 'sixth sense'. Dalton *et al.*'s (2018) study reported that nurses were less focused on systematic assessment but more heavily reliant on their intuitive observations, using MEWS to authenticate their findings and feelings. This was further supported by Jensen *et al.* (2019) where nurses suggested they used NEWS to confirm or question their intuition. This may be linked to the compliance around EWS, discussed in 2.5.2 with nurses balancing the concepts of compliance and clinical decision-making. Whilst Jensen *et al.* (2019) recognised that the balance of intuition versus objective measurements varied, there was no exploration into factors affecting this or discussion around a culture of compliance.

Impact of nurses' experience

McDonnell *et al.* (2013) suggested that experience is an important part of practice with more experienced nurses reluctant to rely upon EWS alone. Reluctance may be driven by the limited assessment involved in EWS with experienced nurses favouring a detailed patient assessment to identify subtle, early signs of deterioration. Confidence in clinical judgement is believed to develop with experience (McDonnell *et al.,* 2013), a concept supported by Jensen *et al.* (2019) who reported that nurses have a lower dependence on the EWS tool as they develop competence and confidence in their clinical judgement skills. Novice nurses however appeared to appreciate EWS to support their decision-making with senior nurses believed that the less experienced, novice nurses relied more heavily on EWS which gave them confidence to escalate and a sense of security in the formula (McDonnell *et al.,* 2013).

Conversely, Lavoie *et al.* (2020) did not find any relationship between level of agreement and the years' of experience in their study focused on Patient Acuity Rating. Whilst this may suggest that experience does not contribute to clinical judgement, the mean experience of the sample was 4.7 years, making

generalisation more difficult and the experiences of newly qualified nurses were not taken into account. This may also relate to educational preparation of the nurses with a high proportion of the nurses having degrees (67.7%) but may also be as a result of the average experience on the unit being 3.6 years with the patient group involved in the study being the most frequently presenting diagnoses on the unit, with nurses familiar with those presentations.

2.6 Summary

The literature review exposed several positive and negative factors that impact nurses' use of the EWS as summarised in Table 2.7.

Table 2.7 Positive and negative factors for use of EWS

Positive influences	Negative influences
Digital EWS provides helpful reminders, enhances compliance with vital sign recording and EWS accuracy	EWS technology is reliant upon the skills, commitment, and actions of the user – reversion to paper versions is observed
EWS enhances awareness and pro-activity	Compliance related to EWS has led to it being seen as a bureaucratic task or checklist rather than a patient centred approach to care
When EWS triggers it provides a vehicle to successful escalation	When patient is not triggering but nurse is concerned, more difficult to get help
EWS can help to legitimise concerns and support clinical judgement and intuition	EWS can conflict with clinical judgement and may hinder nurse clinical decision-making and critical thinking
EWS protocol emboldens nurses to call for help from seniors	EWS emboldens passing of responsibility from nurses to senior colleagues
EWS provides clear guidance for non-Registered Nursing staff	Non-registered staff may not escalate if not concerned
EWS parameters can be adjusted for patients with chronic conditions that lead to constant triggering	Guidance on setting of parameters unclear and therefore not always completed, leading to over-triggering

EWS helps nurses to frame escalation discussions	Nurses' escalation skills are not consistent, and depth of information questioned.
Where a trusting relationship is in place NEWS is more efficient	Fragmented use of NEWS where trust doesn't exist

Included studies investigated a variety of EWS, TTS and RRS including NEWS, HEWS and MEWS. It is acknowledged that these studies are all not specific to the use of NEWS, but they were all pre-cursors to the development of NEWS in the U.K. in an attempt to standardise EWS, therefore have relevance to this study. Studies of NEWS are limited due to its recent implementation followed by the mandate for its use in the U.K.

The qualitative studies reviewed utilised several methodologies to explore nurses' use of EWS with five themes revealed through the process of thematic analysis. The themes were vital sign monitoring for EWS; compliance with EWS; the impact of technology; EWS and escalation; nurses' competence, clinical judgement, and critical thinking. Whilst the studies are all qualitative in design, none focused on RNs' perceptions of the use of EWS. A greater understanding of nurses' perception of EWS based upon their experiences would provide greater depth of understanding of the use of NEWS in clinical practice.

NEWS was introduced as an aid to clinical assessment, to supplement clinical judgement in acute care, not to substitute for competent clinical judgement (RCP, 2020). The review has identified factors affecting nurses' practice and the majority of studies included discussion of how EWS contributed or hindered nurses' clinical judgement and critical thinking skills around the recognition, assessment and management of deterioration. There is a clear conflict of findings emerging in the studies with regards to the extent of assessment outside of EWS in clinical practice with some studies suggesting that nurses are reliant on EWS whilst others suggest EWS is part of a wider assessment process. There was, however, no exploration of the perceived impact of EWS on nurses' clinical judgement and decision-making processes and the contextual factors surrounding its use. Understanding of the interaction of NEWS and clinical judgement would contribute to the existing evidence base, revealing the extent to which NEWS supports or inhibits clinical judgement processes.

2.7 Research Question and objectives

To address the gaps identified through the rapid literature review, the following research question was formed.

"What are Registered Nurses' experiences and perceptions of using NEWS in the U.K. as part of the recognition and management of acute adult patient deterioration?"

Three research objectives were identified to facilitate this exploration:

1. To explore nurses' experiences and perceptions of using NEWS in the recognition and management of acute deterioration in adult patients.
2. To identify what factors influence nurses' use of NEWS in the clinical area.
3. To develop a deeper understanding of the interaction between NEWS and nurses' clinical judgement and decision-making.

2.8 Conclusion

This chapter presented the results of a rapid literature review exploring factors that impact nurses' practice with EWS. It is apparent that studies are being published on a frequent basis, unsurprisingly when NEWS is relatively recently implemented into clinical practice. Several gaps have been revealed in the existing evidence base around nurses' use of NEWS and the interaction between NEWS and clinical judgement processes, leading to development of the research question and objectives for the study. The next chapter considers a number of theoretical frameworks, identified for their potential ability to provide a grounding for this research study, and then provides justification for the adoption of Tanner's (2006) clinical judgement theory.

Chapter 3 Theoretical Underpinning

3.1 Introduction

The rapid review in Chapter 2 identified that the introduction of EWS may impact on nurses' clinical judgement and decision-making practice in relation to patient deterioration. Clinical decision-making is an area of significant research interest in nursing, more so as nurses increase their autonomy and responsibility for making decisions. Nurses make up 25.6% of the NHS workforce (NHS Digital, 2022) and it is estimated that acute care nurses face a decision or judgement every 10 minutes (Bucknall, 2000). The Nursing and Midwifery Council Code (2018) stipulates that Registered Nurses exercise professional judgement and are accountable for their work.

There are several clinical decision-making and clinical judgement theories which seek to explain processes that healthcare professionals follow when considering clinical decision-making. As alluded to in Chapter 1, clinical decision-making and clinical judgement are terms utilised inter-changeably. Arguably, they are both part of a complex process to select the best course of action for a patient based on factors such as critical thinking, intuition, information processing, analysis and much more. The theories of both are also difficult to separate but both, in essence, relate to the same phenomena – decisions taken by nurses relating to diagnosis and intervention on patient care (Thompson, 1999).

This chapter will examine and appraise five models and theories that have relevance in the context of the deteriorating patient phenomenon, considering their suitability as a theoretical underpinning for this study. These are: Information processing model; Intuitive-humanist decision-making model; Cognitive continuum theory; and Prescriptive decision-making theory followed by Clinical judgement theory. Central to the process of understanding is clarifying the theoretical assumptions and existing theories that underpin this study. Theories can enable connections between concepts and provide rational arguments which support and enhance understanding of the phenomena under exploration (Parker-Tomlin *et al.,* 2017). This chapter will conclude by confirming the theoretical underpinning of this study, Tanner's (2006) clinical judgement theory, with a supporting rationale.

3.2 Information Processing Model

The Information processing model is recognised as the dominant clinical decision-making theory in healthcare (Gladstone, 2012). The information processing theory is grounded in cognitive science suggesting that reasoning is limited by memory (Dowding, 2008). Banning (2008) suggests that the information processing model is developed from the hypothetico-deductive approach reliant on the premise that clinicians are logical and rationale decision makers. Decisions are believed to be made in a systematic and analytical manner following a set of procedures that describe cue acquisition, hypothesis generation, cue interpretation, and hypothesis evaluation (Thompson and Dowding, 2002). This is applied to the process of recognising and managing deterioration in Table 3.1

Table 3.1 Information processing model applied to the deteriorating patient

Stage 1: Cue acquisition	The nurse may notice a cue as part of a patient encounter, or may have this information before meeting the patient, such as an increased respiratory rate
Stage 2: Hypothesis generation	The nurse may consider an initial hypothesis based upon limited information alongside short term memory cues (Thompson, 1999). May be multiple hypotheses at this stage. Pearson (2013) emphasised the importance of multiple hypothesis from data representing differential diagnoses, broadening the scope of the assessment to include/exclude conditions with similar presentations. Nurse may undertake ABCDE assessment. This stage may be reliant on the experience and knowledge of the nurse.
Stage 3: Cue interpretation	Following further assessment (which may include completion of EWS), the nurse interprets the cues and makes a decision to confirm, refute or disregards the initial hypotheses
Stage 4: Hypothesis evaluation	The nurse weighs up the pros and cons of each alternative decision, choosing the favoured one based on the evidence available.

For less experienced nurses, this process may be restricted by both experience and knowledge. Experience of the nurse is considered relevant in the information processing model with novice nurses responding to fewer cues to form a hypothesis and reportedly forming less hypotheses than their experienced nursing colleagues (Benner and Tanner 1987, Tanner 2006). Gillespie (2010) asserted that more experienced nurses were able to make clinical decisions based on the breadth of data available and hence sought more cues before reaching a hypothesis. Tanner (2006) suggested that during the analytic process a nurse will break down the circumstance into elements and weigh available options. Nurses are believed to use hypothetico-deductive reasoning with mental shortcuts (heuristics) when making judgements (Corcoran, 1986; Tanner *et al.,* 1987; Cioffi, 1997) with experienced nurses using a process of pattern matching if they have encountered similar situations in the past.

Knowledge is an important aspect of this process (Benner and Tanner 1987), rather than experience alone, although it is recognised that both may work hand in hand. Carper (1978) identified fundamental patterns of knowing in nursing, providing a model of four dimensions of knowledge and how these may relate to the processes of decision-making. Those dimensions include empirical knowing – knowledge that can be measured and tested; ethical knowing – attitudes and moral based knowledge; aesthetic knowing – intuitive-based knowledge informed by experience: and personal knowing – relating to self-understanding, and how this influences professional practice. Whilst Carper's (1978) ways of knowing provided a foundation upon which nurses were educated for many years (Thorne, 2020) there are several critics of her model reflected by a move away from the use of models and reductionist thinking in nursing.

Criticisms of the information processing model are primarily around its application to real world clinical practice, that the linear sequential stages of the model are not viewed in real life with nurses more likely to oscillate between stages which may overlap (Thompson, 1999). The model also fails to acknowledge context, emotion and intuition related to the situation in which the decision is being made, which may have significant influence (Gladstone, 2012).

The Information processing model was rejected as the theoretical underpinning for this study based due to the failure of the model to consider the use of intuition in decision-making, an important aspect when considering nurses' experiences and

perceptions of the use of NEWS as identified in the review of existing literature in the Chapter 2.

3.3 Intuitive-Humanist Decision-Making Model

The second commonly cited model of clinical decision-making is the humanistic-intuitive theory based upon the personal, emotional, and contextual elements in decision-making (Muntean, 2011). This approach, described by Benner and Tanner (1987, p24) as 'understanding without rationale' sits at the opposing end of a continuum to the hypothetico-deductive approach which does not consider the humanist side of decision-making processes (Banning, 2008). The notion and value placed upon experience and intuition in decision-making was viewed with ambiguity as it lacked hard data, but this viewpoint changed with the works of Dreyfus and Dreyfus on skills acquisition (1980) followed by Benner (1982, 2001) and her seminal work on how nurses move from novice to expert.

The intuitive-humanist model differentiates the expert from the novice nurse linking directly to the value of experiential learning. Dreyfus and Dreyfus (1980) studied decision-making in pilots, developing a skills acquisition model based upon situated performance and experiential knowledge. Developing five stages of career development from novice to expert, Dreyfus and Dreyfus (1980) proposed that the novice acts according to rules as opposed to the expert who makes intuitive decisions based upon previous experience. Benner (2001) further developed this concept suggesting that experiential learning for past cases is at the core of clinical judgement. The expert nurse is seen as less dependent on analytic principles to link their understanding of the situation, seeing patterns, and recognising the situation making straightforward intuitive decisions based upon experience (Johansen and O'Brien, 2016). The novice however reflects a rule-based behaviour, disregarding the contextual elements of the decision task (Hoffman *et al*., 2009)

Intuitive approaches offer several strengths in that they consider the complexities of human interaction and the influences of real-life contexts on judgements and decisions (Standing, 2008). They are however more prone to cognitive biases. There is a risk, for example, that people believe their skills and knowledge are better than they are thus over-estimating their competence in situations, lacking awareness and insight (Kruger and Dunning, 1999). This over-confident behaviour (the unconsciously incompetent self-perceived 'expert') could lead to erroneous decisions

being made, without the perpetrator realising. Judgement bias is an important consideration in healthcare as an overconfident clinician is less likely to seek additional information or assistance to inform their judgement. In a study using high fidelity simulation to explore nurses' judgment, nurses with more experience demonstrated a higher tendency towards over-confidence and cognitive bias than less experienced nurses (Yang *et al., 2012),* suggesting that experience does not confirm expert status as the Intuitive-humanist theory claims. Benner (2004) proposes the expert nurse has over five years of experience and has developed an intuitive method of recognising clinical difficulties and determining the correct course of action, but this remains open to debate (Currie and Watterson, 2009; McHugh and Lake, 2010).

Whilst the humanistic-intuitive theory is based upon the personal, emotional, and contextual elements involved in decision-making, it was rejected as an underpinning theory for this study on the basis that the study did not aim to focus on experience and intuition in decision-making alone, but was instead interested in how nurses use NEWS, i.e., the interaction between NEWS, decision-making and clinical judgement.

3.4 Cognitive Continuum Theory

Cognitive Continuum Theory (CCT) is a model of human judgement and decision-making developed by Hammond (1996) which reconciles the differences between the two above models in the belief that a decision is defined by how well structured the task is (Muntean, 2011). It focuses not only on the decision maker, but the environmental factors that influence cognition in decision-making whilst taking into account both analytical and intuitive strategies (Gladstone, 2012). Intuition and analytic decision-making are both core CCT components, less emphasised in other theories which mostly focus on one or the other.

Decisions are assumed to vary across a continuum rather than be explicit. Hammond (1996) proposed six modes of inquiry along the continuum. These are physical science experiment; control group experiment; quasi experiment; computer modelling; expert judgement; unrestricted judgement. At one end of the continuum is pure analysis, at the other pure intuition. The theory explains that if a task is well-structured then systematic reasoning will lead to best decisions. Ill-structured tasks are better dealt with by intuition.

CCT relies on critical thinking skills being applied alongside intuition for the task in hand, the amount of which will fluctuate according to adequate time and information being available (Hammond, 1996). In the situation of the deteriorating patient, time is critical, the situation is unpredictable, the environment complex with competing priorities and the task is likely to lack structure. Application of this to CCT would suggest decision-making to be primarily intuitive judgement in a situation where the available time is short, the problem acute and unstable and the task unstructured, sitting at the extreme end of the continuum. However, other factors would impact upon that, such as the familiarity of the task, knowing the patient, the environment, nurse experience and knowledge. If the nurse was familiar with that patient presentation, cue and pattern recognition may help with the task (Benner and Tanner, 1987) in the form of representational heuristics (Tversky and Kahneman, 1983) where an event is recognised and triggered from memory. A drawback of this is the association of cues with the wrong decisions related to memory which may occur in a high stress and complex situation.

CCT is supported for providing a middle ground in decision-making theory (Thompson, 1999) but has been criticised as to its applicability to nursing as patient need, complexity and care provision evolves (Gladstone, 2012), reflecting the fact that no clinical decision-making is infallible with the rapidly changing healthcare environment. As a result, Standing (2008) suggested amendments to the terminology from ‘modes of inquiry’ to ‘modes of practice’ alongside the addition of a further three modes of practice considered more relevant to clinical decision-making and clinical judgement in nursing. The nine revised modes are experimental research; survey research; qualitative research; action research and clinical audit; critical review of experiential and research evidence; system aided judgement; patient and peer aided judgement; reflective judgement and intuitive judgment. The revised theory recognises the continuum is not linear but should be flexible and oscillating in either direction specific to the changing judgement tasks (Standing, 2007). This revision is more representative of the decisions made by nurses, in particular around the use of reflection. In relation to this study, it also features system aided judgement which may be reflective of the use of EWS.

Cognitive Continuum Theory was rejected as an underpinning theory for this study on the basis that, in a deteriorating patient situation, the model suggests the application of a high level of intuition is desirable, however, this is liable to conflict

with the use of NEWS which is prescriptive in nature and does not formally take account of intuition.

3.5 Prescriptive Decision-Making Theory

A further theory of clinical decision-making was established by Bell *et al.* (1988) who proposed a need for theory that improved the quality of judgements and decision in practice, resulting in the prescriptive theory of clinical decision-making. Watkins (2020) considers prescriptive theory to be pivotal to validate clinical decision-making but also recognises that by combining normative and prescriptive theories, clinical decisions can be enriched and enhanced. Prescriptive decision-making may be further enhanced through structured assessment tools such as EWS which may reduce the margin of error and improve outcomes. Prescriptive decision-making theory is underpinned by the assumption that every decision-maker can make errors and human thought processing can be biased (O'Neill *et al.,* 2005).

In the literature, there are multiple interpretations of prescriptive decision-making. One interpretation focuses on the use of an algorithm, such as a decision tree, which offers optimality to decision-making (Brier *et al.,* 2015). Decisions trees are used in prescriptive modelling and work by breaking down problems into smaller parts, they add numerical values as to the probability of events. Badriyah *et al.,* (2014) suggests that a key feature of decision trees is they are generated algorithmically using data mining however it is clear that the term is used more loosely throughout the literature which refers to them alongside checklists and flowcharts (Clay-Williams and Lacey (2015) and decision aids (O'Neill *et al.,* 2005) which have not been generated algorithmically. Other examples of prescriptive decision-making are clinical guidelines which assist decisions about appropriate healthcare in specific circumstances, often also referred to as protocols, aimed at improving the quality of care or standardising care (Shaban, 2005). There are many critics of clinical guidelines as prescriptive decision-making tools suggesting they cannot be a solution to all aspects of the decision-making process (Schön, 2017) and cannot offer a single answer for a complex problem as decisions do not occur in a 'vacuum' (Thompson and Dowding, 2002).

Whilst the theory around prescriptive decision-making is open to interpretation, several characteristics are generated from the available literature that are discussed above. In application to the use of EWS, it could be argued that EWS are examples

of prescriptive decision-making tools. With reference to NEWS, a vast amount of the research evidence on EWS focuses on the ability of the tool to predict deterioration and patient outcomes, such as unplanned ICU admission or mortality, suggesting that NEWS is a prescriptive decision-making tool based on what is likely to happen or an algorithm which offers optimality to decision-making. The RCP (2017) suggest that NEWS supports clinical judgement, an aid to clinical assessment. NEWS is reported to validate decision-making and assist in appropriate escalation of care, this is achieved by combining normative theory (what decisions individuals should make logically) with prescriptive guidance (policies that guide decisions within an evidence base that informs practice) (Watkins, 2020).

Whilst NEWS may reflect a prescriptive decision-making tool, prescriptive decision-making theory was rejected for this study on the basis that NEWS is an aid to decision-making (RCP, 2017) designed to support clinical judgement rather than to replace it. The theory does not consider the contextual elements or human factors that may impact on nurses' use of NEWS.

3.6 Clinical Judgement Theory

Clinical judgement is frequently referred to within the literature in relation to the deteriorating patient and the use of EWS, however very few researchers have sought to provide an in-depth exploration of its theoretical application. Maule (2001) recognises judgement as the process of identifying and integrating information, weighting, and evaluating the cues and reaching an overall evaluation. Tanner (2006), one of the most significant researchers on nurses' clinical judgement, developed a research-based model of clinical judgement, based upon synthesis of over 200 research studies which aimed to describe how nurses think when faced with complex clinical situations requiring judgement.

Tanner (2006) proposed four stages in the process of clinical judgement: noticing; interpreting; responding and reflecting. Each stage requires understanding and knowledge to appreciate the characteristics of the clinical situation and an appropriate response within a given timeframe, recognising the impact of experience, context, and relationships on the process, reflecting underlying theories around clinical decision-making. Tanner (2006) made a number of assumptions around clinical judgement. The first is that clinical judgement is influenced by many variables including how familiar the nurse is with the patient and their pattern of

response to nursing interventions. This resonates with the work of Benner (2001) recognising the impact of experiential learning on judgement that may differentiate the novice from the expert based upon the notion that the novice has less exposure to previous situations and hence less pattern recognition and intuitive thinking. Clinical judgement requires critical thinking to apply the essential content of the situation and apply it to the patients through the use of reasoning. The novice however who is more drawn to rule-based behaviour (Hoffman *et al.,* 2009) may be restricted in this contextualisation.

Noticing, the first stage, is described by Tanner (2006) as the initial grasp of the situation and reflects what nurses expect in a clinical situation. Expectations arise from previous knowledge of a patient, their clinical experience/experience of similar patient presentations and their personal values (Martin *et al.,* 2016). Tanner (2006) acknowledges the influence of clinical demands, nurses' vision of excellent practice, values related to the patient situation, culture of the clinical area, patterns of care and complexity of the work environment on this stage of the process. Adding to the pre-requisites needed for clinical judgement, Modic (2013) expressed the need for an in-depth knowledge of pathophysiology, pharmacology, laboratory science, human interaction patterns and psychology to improve the nurses' ability to notice when something is not as expected. As the first stage in the process, failure to undertake this stage competently will inhibit ability to make appropriate clinical judgement impacting on subsequent stages (Martin *et al.,* 2016).

Purling and King (2012) suggest that the noticing stage of clinical judgement is also heavily reliant upon situational awareness, the concept of knowing and understanding what is happening around you (Cohen, 2013) which may be lacking in less experienced nurses. Failure to recognise deterioration in ward settings has been attributed to errors in situational awareness (Panesar *et al.,* 2012; Brady *et al.,* 2014; Aoki *et al.,* 2019). Situational awareness in the noticing stage is reflected by an awareness of the environmental components of the situation, before reaching the next stage where a grasp of the meaning of those components and their prediction becomes important. Situational awareness in a scenario is recognised to take longer in novice nurses compared to senior nurses, with the novice focusing on gathering data before considering decision-making, whilst the senior nurse makes suppositions faster based on their experience or perception of the relevance of the information gathered (Shinnick, 2022). Based on this evidence, it would be reasonable to assume that the novice nurse would spend more time in the noticing stage,

gathering information, however prior to this study there was no evidence to support this assumption.

Once noticing has occurred, nurses move to interpret the situation, developing sufficient understanding of the situation to respond. Tanner (2006) suggests that once the nurse has an initial grasp of the situation, reasoning patterns are triggered which allow interpretation of the data and help towards determining a course of action. Modic (2013) extends this by suggesting this stage includes analytical, intuitive, and narrative reasoning for the nurse to reach a conclusion based upon their initial grasp of the situation. If, at this stage, the nurse can make sense of the situation, a hypothetico-deductive reasoning pattern will be triggered with interpretative or diagnostic hypotheses produced. At this stage a nurse may undertake additional assessment with an aim of ruling out hypotheses. Tanner (2006) suggests this is the stage where intuition will play a part in the process. As a result, the interpretation stage may vary according to both experience and knowledge of the situation with novice nurses reportedly less accurate as they over-select cues and struggle to discriminate between them (Hoffman *et al*., 2009).
The third stage of clinical judgement (as described by Tanner, 2006) 'responding' refers to the decision and execution of an appropriate course of action, or not as the case may be. This stage is based upon the nurse's interpretation of what was noticed and results of planned assessments. Application of this stage is contextual. As the stage evolves nurses fine tune their action, constantly re-evaluating if the desired results are not achieved (Modic, 2013). In application to the use of NEWS, responding may have a number of alternatives but will be directed by the score in a prescriptive manner, as per the clinical response (table two). This stage can therefore vary from taking no action or change to immediate escalation for emergency assessment. Following NEWS in this situation may lead to less errors at this stage if the guidance is followed. However, as shown in the rapid review in Chapter 2, various factors may influence what nurses do at this stage such as confidence, experience, hierarchy, organisational culture and compliance, response to escalation and competence. For example, nurses' position in the multidisciplinary team may impact on the action taken with a senior nurse applying intuition from experiential learning to the situation compared to a student nurse who is reliant on their seniors for guidance reflecting the novice to expert continuum (Benner, 2001).

The fourth and final stage, 'reflection', includes both 'reflection in action' and 'reflection on action', an approach described by Schön (1991). Reflection in action in

this stage of clinical judgement refers to '*attending to the patients' responses to the nursing action while in the process of acting'* (Tanner, 2006, p 208). Reflection in action helps to confirm or refute the interpretation and response by observing a patient's reaction to the intervention and then adapting accordingly. Tanner (2006) suggests that this reflection is primarily tacit and not always obvious immediately. For example, if in the responding stage a patient receives intravenous fluids, the response may not be immediately obvious but delayed. The second component, reflection on action includes reviewing outcomes of the action and identifying any subsequent clinical learning. To complete this stage a nurse needs to take responsibility of their actions, reflecting on them and their associated outcomes. This reflection on action helps with the development of reasoning skills that can be applied in future situations (Shinnick, 2022). One consideration for this stage is the way in which the reflection is undertaken and supported in the clinical environment as an essential element of the debriefing process.

Tanner's model of clinical judgement was considered to provide a suitable underpinning for this study for a number of reasons. In nursing, judgements are often complex. In the context of the deteriorating patient, the information collected as cues involves multiple clinical signs and symptoms needing assessing, collating, and weighing up before action can be taken (decision-making). For example, Stewart *et al.* (2014) suggest that EWS assists nurses with recognising change in a deteriorating patient earlier, congruent with the noticing stage of Tanner's (2006) model yet does not attempt application of the stages of the model. Others suggest that EWS supplements clinical judgement (Gao *et al.,* 2007; Alam *et al.,* 2014; Burns *et al.,* 2018) rather than replacing it (Cuthbertson and Smith, 2007; Mulligan, 2010; O'Donoghue *et al.,* 2011; Fullerton *et al.,* 2012; RCP, 2017). Whilst these findings confirm the existence of a relationship between the use of EWS and clinical judgement, none have explored the extent of this relationship in application to a theoretical model. Table 3.2 provides an overview of the stages of clinical judgement in application to the perceived action, knowledge, and skills in relation to the care of a deteriorating patient.

Table 3.2 Application of the four stages of clinical judgement

Stage of process	**Action**	**Skill/Knowledge required**
Noticing	Vital Sign monitoring + NEWS Observation of soft signs Patient report of changes	Clinical skills / Non-clinical skills Background knowledge of scenario Contextual knowledge Knowing the patient.
Interpreting	Analysis of findings Reasoning processes Intuitive processes Pattern Recognition	Applied anatomy and physiology Knowledge of causes of deterioration
Responding	Further Assessment beyond NEWS such as ABCDE Initial nurse-led intervention i.e., medication administration, oxygen administration Escalation to senior/expert	Clinical skills for systematic assessment Applied anatomy and Physiology Clinical Guidance Communication
Reflecting	Reflecting in action Reflection on action	Ability to read the patient and response to the intervention Skills of reflection to identify clinical learning Recognising outcomes

3.7 Identification of an underlying theory

Having identified theories around clinical judgement and decision-making in the chapter and considering their application to the use of NEWS, the next consideration was to explore the theory underpinning NEWS, starting with the question “what is NEWS?” The evidence base, definition and theory on which NEWS was developed is unclear, as alluded to in Chapter 1. Furthermore, amendments made in the development of NEWS2 were based upon anecdotal evidence and consensus rather than a theoretical basis. This lack of evidence base was recognised by Buist and Mahoney (2014) who vehemently criticised the fact that Rapid Response Systems underwent widespread implementation with little evidence to support them, despite the drive for evidence-based practice in nursing (NMC, 2018a, 2018b).

NEWS is not clearly defined but referred to in various ways throughout the literature as a 'tool' (RCP, 2012, 2017); a 'system' (NICE, 2020); 'clinical decision aid' (RCP, 2012, 2017); 'checklist' (Maxwell, 2018) and 'protocol' (Griffith *et al.,* 2018). This lack of definition and theoretical underpinning led to an in-depth reflexive exercise examining each of the possibilities in turn, resulting in a tornado of uncertainty involving an exploration of each concept (Figure 3.1) trying to decipher the superior outcome.

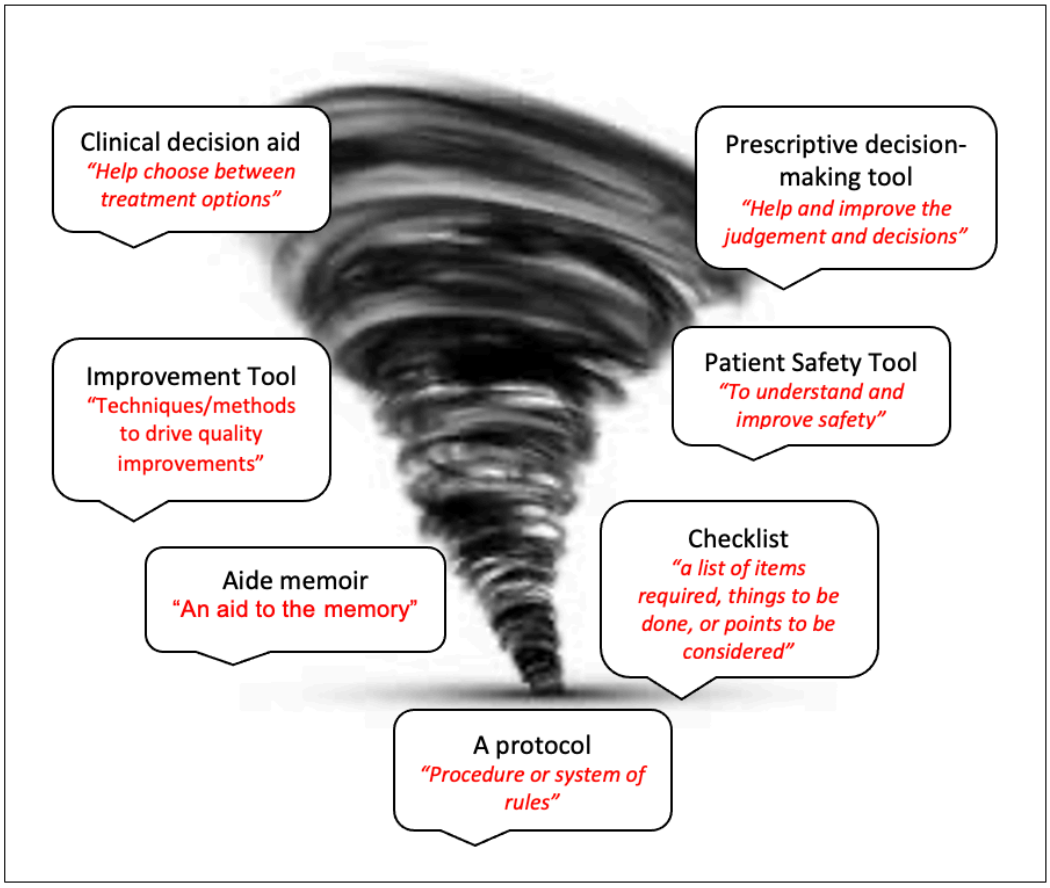


Figure 3.1 What is NEWS?

The narrative for this exercise is provided in Appendix 4. The conclusion of this exercise confirmed that the underpinning theory for the study could not be drawn from NEWS but should be focused on the interaction between nurses and NEWS.

There were a number of factors which supported the rationale for drawing on Tanner's clinical judgement theory as the underpinning theory for this study, not least the philosophical relationship between Tanner's Clinical Judgement Theory and hermeneutic phenomenology. The overarching goal of this study was to increase understanding of the meaning of nurses' experiences and perceptions of the use of

NEWS (accessed through narratives with nurses exploring their practical acts of living) through the lens of hermeneutic phenomenology (examined in Chapter 4) to reveal meaning (Crist and Tanner, 2003). The conclusions that Tanner (2006) drew from her review of studies on clinical judgement highlighted the significance of the nurses' background, context of the situation and relationship with patients on their clinical judgement processes. This aligns with the emphasis that Gadamer (2004) places on everyday experience and actions being dynamic, influenced by our history, culture and knowledge. Tanner's conclusions indicated that nurses are more influenced by their previous experiences than the objective data that they are presented with, in the same way that hermeneutic phenomenology is based on the belief that humans act based on interpretation and meanings from previous experiences of phenomena. Core to her theory, Tanner (2006) discusses the significance of the situation and the culture of the nursing care unit, in the same way that hermeneutic phenomenologists view Dasein and the interplay between self, environment and the wider world (Heidegger, 1962). Tanner (2006) also placed emphasis on sound clinical judgement resting to some degree upon the nurse 'knowing a patient' (Tanner *et al.,* 1993), since through critical thinking this knowledge influences nurses' clinical judgement. This reflects a series of possibilities or ways to be (Heidegger, 1962) that are shaped by nurses' existence in time, their environment and their being in the world.

The alignment of Tanner's model of clinical judgement with the philosophy of hermeneutic phenomenology was undeniably a leading factor in the choice of this model as an underpinning theory for this study exploring nurses' use of NEWS to gain a greater understanding of the interaction between NEWS and nurses' clinical judgement and decision-making. Further rationale for the choice of underpinning model was offered through the RCP (2020) guidance on the use of NEWS which highlighted that NEWS is not a substitute for clinical judgement but should supplement it. With nurses making clinical judgements frequently, an enhanced understanding of how nurses make these judgements and what influences them would be beneficial for both nurses and their employers (Buckingham and Adams, 2000). Through application of Tanner's model, the extent to which NEWS supplements clinical judgement will be revealed.

3.8 Conclusion

The literature review in Chapter 2 revealed a gap in the evidence base around the understanding of nurses' experiences and perceptions of using NEWS. To drive improvements in patient safety greater understanding is needed of the interaction between patient safety initiatives, such as NEWS, and the processes undertaken by nurses. This chapter has appraised several models and theories of clinical decision-making and clinical judgment, introducing Tanner's model of clinical judgement (2006) as the underpinning theoretical framework for this study. The model will provide an explanatory framework on which the study will be guided as well as aiding the interpretation of the findings. The next chapter presents the study ontology, epistemology, methodology and design.

Chapter 4 Ontology, epistemology, methodology and methods

4.1 Introduction

This chapter provides an overview of the research process for this study. This research is constructed through the application of a hermeneutic phenomenological approach underpinned by the philosophy of Hans-Georg Gadamer (2004). The chapter starts by presenting the ontological view, epistemological stance, and interpretative phenomenology as a philosophical underpinning for the study. Next, the hermeneutic phenomenological methodological approach taken with details of the method including study design, data collection and interpretative data analysis is provided. The rationale for decisions made is provided throughout the chapter with particular reference to the underlying Gadamerian philosophical approach employed. Central to this, a Gadamerian hermeneutic spiral (Figure 4.1) forms the basis of the interpretation and analysis of the data, demonstrating application of hermeneutic phenomenology informed by Gadamer (2004). Thorough explanation of this spiral will offer transparency of the evolving understanding and meaning of the written and spoken texts and the process of moving from the whole to the parts to develop understanding of the phenomenon. Ethical considerations for the study and the process undertaken to gain approval are explained and, in line with Gadamerian principles which situate human understanding as being subjective (Gadamer, 2004) and requiring openness to conversation with others (Regan, 2012), this chapter will explore in-depth the reflexivity and consideration of trustworthiness applied to the study. This chapter is written using the first person where applicable, reflecting the researcher as central to the interpretation as per the Gadamerian spiral (Figure 4.1). These sections are reflective in nature, demonstrating the interpretation that took place; hence the first-person approach is the most appropriate (Webb, 1992; Guba and Lincoln, 2005).

4.2 Ontology and epistemology

As suggested by Ward *et al.* (2015) at the start of the journey the researcher faces a ‘quagmire of epistemological options’ (p450), taking a research question and debating the ‘lens’ for the study being one of the earliest decisions. Holloway (2005) suggests that whilst qualitative research starts with a research question, that question must reflect the desire to explore social behaviours through peoples’ accounts. The research question therefore is generally the determinant of the

methodological approach and the best place to start, recognising that the researcher comes to the study with experience alongside an ontological and epistemological view which underpins their interest for a study. Previous research in this area (Chapter 2) highlighted a range of methodologies, yet in many studies the ontological and epistemological stance was not clear, nor had the researcher outlined their own philosophical approach to their research study which underpinned the research process. For many of those studies (McDonnell *et al.,* 2012; Smith and Aitken, 2016; Foley and Dowling, 2019; Smith *et al.,* 2021) the role of the researcher as an expert within their subject area was not adequately or consistently explored with regards to the drivers for the development of the research questions. For this study, underpinning these early decisions was the knowledge that as a researcher trying to understand nurses' experiences and perception of NEWS it would be difficult to separate my own experiences and hence my philosophical position needed to be documented.

Ontology and epistemology are tightly entwined with both forming the researcher's personal philosophical position and hence it was critical to explore these at the early stage of the research journey. Ontologies are theories of what exists (Rawnsley,1998) and therefore ontology is the object of inquiry. Relativist ontology, which is based on the philosophy that reality is constructed within the human mind and therefore not one true reality exists (Wellington, 2015), aligned to my real world of clinical practice. I believe that reality is relative according to how individuals experience it, and this belief provided the underpinning for the research question, focused on exploring experiences. The alternative view would reflect a realist ontology, the existence of a single reality, a single world which exists independent of human experience. As identified in Chapter 1 (p.13), whilst it might be possible eventually to develop a science relating to "human performance in a given system" (Clinical Human Factors Group, 2015) the real world of clinical practice does not allow for the existence of a single reality.

The research question for this study stemmed from my experience as a RN and nurse educator over several years, as described in Chapter 1, combined with the findings of literature reviews (Chapter 2). My observation from delivering simulation within a Higher Education Institution suggested to me that whilst NEWS was in place in most healthcare organisations, its application varied across organisations. Whilst NEWS was introduced to standardise and support assessment processes (RCP, 2017), I perceived that the skills of the nurses who attended my sessions were not

reflective of this. I encountered variation in their reliance on NEWS as a track and trigger tool to support decision-making, with some participants exactly following the NEWS clinical response protocol and others demonstrating a conflict between their own clinical judgement, experience, and NEWS. At times, while assessing nurses in the classroom, I observed nurses appearing to follow their intuition/perception of the experience rather than relying on NEWS to guide them, whilst others followed NEWS almost religiously using a rule-based approach. Frequently in the classroom, no clear rationale for the decisions being made could be identified, either by me or by the post-registration students themselves. This reflection on my assumptions and views that developed because of my experiences led to consideration of the research paradigm that would form the foundation of my proposed research and underpin the next steps and the epistemological approach that would 'fit' the exploration of the phenomenon.

Epistemology is often used interchangeably with theory of knowledge or study of knowledge, to encompass philosophical problems concerned with the origin and structure of knowledge (Wellington, 2015). Khun (1962) introduced the concept of a paradigm as an epistemological stance which acknowledges a changing world view reflecting the evolvement of society and science, revealing assumptions about reality and how knowledge is created. Much of the existing research in early scoping literature reviews (Appendix 1) were large quantitative studies reflecting a positivist epistemological approach which makes an underlying assumption of a single reality (Davies and Fisher, 2018). Positivism focuses on objectivity in testing of hypotheses or theories viewing the research and the researcher as two separate entities that are not linked (Kelly *et al.*, 2018). In circumstances where the researcher is immersed within the world under study, positivism would be difficult to achieve and would not support the nature of the investigation that I considered was important to undertake. My experiences, my opinions, my perceptions of the real world of clinical practice underpinned my reasoning to undertake this study.

Thus, whilst it was clear that positivism's postulation that the world is comprised of a single observable truth was clearly incongruent with my stance, it was necessary to consider post-positivism which argues that research can result in an estimation of truth rather than the absolute truth which underpins positivism (Creswell, 2014). Post-positivism reflects a more evolutionary process of understanding the world and recognises the presence of social reality and the subjectivity of reality. Post-positivism can reflect the use of both quantitative and qualitative data sources (Rolfe,

2006); however positivism and post-positivism are more frequently aligned to quantitative methods of collecting data (Denzin and Lincoln, 2011). Whilst post-positivism is suggested to underpin the development of scientific phenomenology (Giorgi 2000), its neglect of holism (Patton, 2015) in other words, its neglect of human interactions and contextual factors (Catchpole, 2010) formed the basis on which it was rejected as a paradigm for this study.

Constructivism offers an anti-positivist ontological approach that believes that reality is socially constructed and re-constructed by people in their everyday lives and is therefore subjective in nature (Kelly *et al.,* 2018). Constructivism has been linked to learning theory, the stages through which knowledge is constructed through a variety of experiences, with those experiences being the building blocks of knowledge (Ward *et al.,* 2015). How people teach, learn and develop their knowledge is shaped by the "style and habits" of their social group (Benner *et al*., 2009, p.235) which in the case of this study comprised of Registered Nurses. Both Piaget and Vygotsky are eminent figures in the development of constructivist theories from their perspective as developmental psychologists, sharing a belief that knowledge is constructed (Lourenco, 2012). However, they differed in views with Piaget (1964) focused upon the interaction of experiences and ideas as the basis for new knowledge creation, as opposed to Vygotsky (1978) who considered that learning is achieved through social and cultural means with collaborative dialogue at the centre of developing new knowledge. The differences in the philosophical approaches offered by Piaget and Vygotsky acknowledge that constructivism does not hold a belief in a single way to generate knowledge. Consequently, researchers working within the constructivist paradigm seek understanding of human experiences through participants' views of the situation or phenomenon being studied (Guzys *et al.,* 2015). Constructivists attempt to understand the world through the lens of those people living and experiencing it determining a collaborative construction of knowledge (Probst, 2015).

As a registered nurse researcher with my own experiences, opinions, and perceptions of the deteriorating patient phenomenon, I cannot claim objectivity within this study but acknowledge my subjectivity as part of the co-construction of understanding. For nurses, influences on their practice of recognition of patient deterioration are multiple, the construction of reality is not limited, there are no single absolute truths, but multiple realities in which people exist and experience their world. This study exploring Registered Nurses' use of NEWS therefore aims to

explore those experiences and perceptions underpinned by a constructivism approach to gain deeper understanding. The research question evolved from my experience of the phenomenon in question, and an increasing curiosity to understand how nurses utilised NEWS in their clinical practice. Taking a constructivist approach supports this, allowing utilisation of my experience as a contributory part of the research and the opportunity to ask the 'how' and 'what' to further explore the phenomenon. The aim of the study was to be explorative rather than conclusive, the outcome being to open a dialogue about the use of NEWS by nurses that could continue following the study (Geanellos, 1998) and may influence future practice and education.

4.3 Interpretative phenomenology - a philosophical position

Interpretivism aligns with a relativist ontological perspective, an interpretative epistemological approach supports my belief that each of the RNs in this study had their own experiences and their own perspective of using the NEWS which has been influenced by multiple factors. Ryan (2018) discusses the alignment of the principles and values of interpretivism with many of those used in nursing (patient centred, holistic and personalised care), explaining why an increasing amount of nursing research sits within this theoretical perspective. Underlying this approach is the belief that nurses, as professionals, are individuals and human beings whose actions cannot be explained purely by social norms but through conscious and often complex decision-making processes, interpreting objective reality in different ways. The phenomenological philosophical movement was initiated in the early twentieth century by Edmund Husserl, a German philosopher who rejected empirical science as the only truth arguing that it failed to uncover lived experience (Crowther and Thomson, 2023). Drawing upon writings of philosophers such as Kant, Hegel and Bretano (Dowling, 2007), Husserl pursued a desire to explore phenomena as they appear through consciousness (Husserl, 2001). This meant exploring the meaning of human experience through those that had experienced it, without the metaphysical and theoretical speculations that had been at the centre of positivist epistemology. Husserl discussed the idea of 'intentionality', where consciousness is directed toward real or perceived objects and is the way in which we are connected to the world (Van Manen, 2014). Fundamental to the transcendental phenomenology philosophical approach proposed by Husserl (1931) was the concept of phenomenological reduction or "epoché" used to describe the suspension of our natural attitudes and preconceptions, putting aside our understanding to describe the

structure of experiences, with the researcher becoming a research tool. In line with the prevailing paradigm of his time, he believed that a scientific approach was key to grasping the lived experiences of others with the goal of a researcher having transcendental subjectivity, achievable through bracketing, whereby the researcher holds in abeyance their pre-conceptions and theoretical impositions (Kleiman, 2004) removing distractions. Additionally, Husserl believed in the concept of universal essences, features that are common to multiple people within an experience, reflecting that reality is considered objective and independent of both history and context (Lopez and Willis, 2004).

Martin Heidegger, a later German philosopher (1889–1976) and student of Husserl further developed the phenomenological movement, offering an interpretative philosophical approach which focused on ontology and the study of being itself (Crowther and Thomson, 2023). Heidegger focused on being 'in the world', believing that reality cannot be interpreted without background, rejecting Husserl's notion that history, culture and tradition do not impact on understanding of a phenomenon (Horrigan-Kelly *et al.,* 2016). Heidegger's seminal text '*Being and Time*' published in 1927, reflected that humans are unique and must interpret themselves, with the time and place in which they live influencing experience and understanding. Time, according to Heidegger (1962), does not refer to a single moment but places an emphasis on temporality or the passage of time in relation to the past, present and future. Freedom is commonly referred to with regards to Heideggerian philosophy, and associated with the premise that humans are constantly faced with choices between two or more options and, despite often unclear outcomes, a choice has to be made and the decision acted upon (Lopez and Willis, 2004). The decision made may have to be justified later to others who were not present at the time.

A central tenet to Heidegger's work is 'Dasein', translated as 'being there' or 'being-in-the-world'. Dibley *et al*. (2020, p16) propose that Dasein is *"an opening or space by or in which humans experience their world"*. This acknowledges an inter-connectedness between humans, their experiences and interaction with their world, rather than suggesting they experience the world in a detached way. Furthermore, 'being-in-the-world' experience is shaped by people's individual cultures, traditions and histories ('historicity'). Heidegger proposed the concept of co-constitution and co-creation, blending of meaning to achieve understanding. Whilst the goal of phenomenology for Husserl was descriptive and focused on phenomenological reduction in which the investigator frees themselves from their prejudices, for

Heidegger there was no one phenomenology in the same way that there was no single reality. Heidegger (1962) believed in the existence of multiple realities and perceptions with phenomenology underpinned by truth, the revealing of meaning. Heidegger (1962) highlights that truth which may otherwise remain hidden is revealed through the telling and interpretation of people's stories.

Hans-Georg Gadamer, a German philosopher, academic and former student of Heidegger developed the philosophy of interpretative hermeneutics further by presenting the notion of philosophical hermeneutics (Gadamer, 2004). Gadamer came to international prominence with the English translation in 1975 of *Truth and Method* in which he refers to 'Truth' as focusing on what the truth is to the person experiencing a phenomenon, with multiplicity of meanings in a story (Dibley *et al.,* 2020). His concept of truth stems from the ontological stance of Heidegger who recognises the importance of temporality and historicity recognising multiple realities and perceptions exist (Dibley *et al.,* 2020). In this sense, what is truth for one may not be the same for another and therefore there is no absolute truth. This underpins the reason for acknowledging multiple realities in the perceptions of research participants. Researchers applying hermeneutic phenomenological philosophical underpinnings are not attempting to seek a final or absolute truth but representing the experiences of individuals that provoke thinking, awareness and understanding, as demonstrated in the hermeneutic spiral (Figure 4.1).

Gadamer built upon Heidegger's notion of Dasein, by introducing the concept of a "*fusion of horizons of understanding*" (2004, p370) that mediates between people and experiences. This is a point where personal perspectives are acknowledged and may be altered leading to a changing of perspectives as a critical part of the research process. Gadamer (2004) utilises the term 'horizon' to signify a world view or standpoint. The fusion of horizons occurs when the interpreter's horizon (which includes pre-understandings and prejudices) intersects with the horizon of another (such as the interviewee) or context of the text (verbal or written) under inquiry, expanding both horizons (Vessey, 2009). Not only is the text understood from a new horizon, but also the interpreter's subjectivity and the way in which they understand both themselves and the world (Barak, 2020). Bhattacharya and Kim (2018, p.3) discuss this referring to the concept of a 'collision' that occurs between horizons through continual examination of our prejudices which eventually leads to understanding and a fusion of horizons.

Gadamer (1977) concurred with the view of Heidegger that the researcher is influenced by their pre-understandings or presuppositions of reality, extending this with his unique perception of prejudice, a concept of pre-understanding central to his philosophy. Gadamer refers to the term 'prejudices' which he suggests are "*biases of our openness to the world"* (Gadamer, 1977, p.9). He uses the term to demonstrate a connectedness with our world in a similar way to which Heidegger refers to pre-understandings. However, his view of prejudice, rather than reflecting a negative position is a positive one, reflecting a pervasive power in the concept of understanding (Bhattacharya and Kim, 2018), confirming that prejudice is integral to who we are as humans and enables understanding of human experience. Gadamer therefore proposes that prejudice should be embraced for the way it shapes our being, focusing on the recognition that our history can both illuminate our understanding and limit it. Pre-understandings need to be provoked and identified rather than being obvious (Maxwell *et al.,* 2020). Research underpinned by Gadamerian philosophy therefore requires an openness to both our own and others' perceptions, a readiness to learn and to accept differences in personal perspectives.

A central tenet of interpretative phenomenology, highlighted by both Heidegger and Gadamer, is the importance of language with Heidegger identifying that language is the primary way in which we dwell in Being. The main way in which humans interpret their own worlds and interact with others is through language and therefore language is central to understanding. Gadamer picks up on this, placing emphasis on language being the central focus to hermeneutics, proposing that *"reaching an understanding is a process that must succeed or fail in the medium of language"* (Gadamer, 2006, p.13). Gadamer furthered this emphasis on language by suggesting that the process of gaining understanding is a language event which resembles not only language with others but *"the inner conversation of the soul with itself"* (Gadamer, 2006, p.13) reflecting the philosophy of Plato around thinking about ourselves and the world around us. This focus on language underpins the use of language-based methods in hermeneutic phenomenology which places emphasis on the perceptions of experiences. Language therefore provides the medium and mechanism for stories and experiences in which the researcher seeks meaning and understanding. Language-based communication with ourselves and with others offers the opportunity to develop *a fusion of horizons of understanding*. Gadamer, like Heidegger, discredited the concept of bracketing or 'epoche' recognising that human understanding is subjective and necessarily contextualised, with Gadamer

suggesting that to *“escape from one’s own concepts in interpretation is not only impossible but manifestly absurd”* (Gadamer, 2004, p398).

4.4 Hermeneutic Phenomenology as methodology

Methodology is concerned with procedures for yielding information that are believable, promoting epistemological aims within the philosophy of science (Rawnsley, 1998). Stubblefield and Murray (2002) highlight the importance of considering the link between the philosophical underpinning of a study and its methodology to ensure that these guide the method, in order to enhance the 'rigor' [sic] of phenomenological research. Hermeneutic phenomenology can be positioned as both philosophy and methodology (Stubblefield and Murray, 2002). As a philosophy, it believes it is desirable and possible to seek an understanding of 'being-in-the-world'. As a methodology, it aims "to reveal the unique and individual meaning of an experience" as experienced by someone in a particular situation (Stubblefield and Murray, 2002, p.151). To ensure the chosen methodology of hermeneutic phenomenology was appropriate, several methodologies were considered through a process of exploration, discussion and consideration of their alignment with the ontological and epistemological underpinning. Critical appraisal of previous studies (Chapter 2) avoided repetition of previous methodological weaknesses (such as failure to consider the researchers’ position in qualitative research and lack of discussion around study trustworthiness) and ensured that the study was designed to offer new insight and new knowledge into the phenomenon.

The first methodological approach considered was ethnography. Utilising an ethnographic methodology, the researcher studies patterns of behaviour or actions of a group within their natural setting (Cresswell, 2013). Most existing ethnographic studies on the deteriorating patient phenomena (such as Smith *et al.,* 2020) involve the use of participant or non-participant observation over a prolonged period of time, however many also involve the use of interviews as a data collection tool (Smith *et al.,* 2021). The aim of ethnography is to provide holistic insight into peoples’ behaviours within their social or cultural setting rather than explore experiences and perceptions. Whilst the impact of culture cannot be underestimated or eliminated, culture is not the sole focus of the study although, as Chapter 2 identified, organisational culture may have an impact, nor does it form part of the study over-arching aim. The aim of this study was to explore RNs’ experiences and perceptions of using NEWS in the U.K. as part of the recognition and management of acute adult

patient deterioration. This therefore led to the conclusion that ethnographical methodology would not offer a suitable approach to address the study aim.

Case study research posed another option for a suitable methodology which can provide a framework for exploratory research in real-life settings (Yin, 2009). The use of case study research has increased within health and social care gaining popularity within nurse-led research (Gangeness and Yurkovich, 2006). Anthony and Jack (2009) reported that case study was frequently used within the acute care setting to address complex questions and issues with the primary objectives including verbs such as 'describe', 'explore', 'understand' and 'evaluate' considering experiences and perceptions. One of the strengths of case study research methodology is that it allows for exploration through multiple data sources (Taylor, 2013) that can be used to provide evidence and strengthen the findings. Through reflection and comparison with phenomenology, case study was rejected for use as it did not offer sufficient focus on perceptions and experiences as per the aim of this research study.

The chosen methodology for the study draws on hermeneutic phenomenology informed by the philosophical approach described by Gadamer (1977). Hermeneutics is the science of interpretation (Gerber and Mayle, 2004), the study of understanding to decipher meaning, with hermeneutic understanding requiring an interpretative or translational stance (Dibley *et al.,* 2020). Phenomenology has become recognised for its uses in healthcare research (Flood, 2010) and one of the foremost philosophies that guide knowledge generation in nursing (Moi and Gjengedal, 2008).

There are two recognised schools of phenomenology; descriptive and interpretative (Tuohy *et al.,* 2013) which align to the philosophical underpinning described earlier in this chapter (section 4.3). Descriptive phenomenology aims to describe the phenomenon's characteristics rather than individual's experiences (Giorgi and Giorgi, 2008) aligned to the approach identified by Husserl. In the use of descriptive phenomenology, a researcher separates their assumptions and experiences of the phenomena from the process of undertaking the research, a process frequently debated today known as 'bracketing' (Koch, 1999 p30). Pringle *et al.* (2011) debate whether it is possible to describe something without any interpretation, a view put forward by Van Manen (2007) who questioned the existence of un-interpreted phenomena, supporting the concept of interpretative phenomenology to describe,

understand and interpret experiences (Tuohy *et al.,* 2013). As a nurse researcher with significant experience in the field of caring for deteriorating patients, I believe that being objective and completely separating my experiences and perceptions of this phenomenon would not be possible. Those experiences were the motivation for the study and therefore to detach myself from those presuppositions would undermine my study. For this reason, descriptive phenomenology was excluded as a methodological approach and interpretative phenomenology, in line with my epistemological stance, chosen for its strength in the exploration of lived experiences – those of the participants and the researcher to develop a shared understanding and new meaning of the phenomena.

The term 'lived experience' is frequently associated with Van Manen (2007) and phenomenology is cited as the approach for researchers to gain insight and develop understanding into lived experience (McConnell-Henry *et al*., 2011). Lived experiences have been explored in many areas of nursing. Brooke and Manneh (2018) discuss the strength of exploring lived experiences in identification of unique barriers and challenges in nursing practice. In addition, core to phenomenology is that extraneous factors, such as cultural thoughts and beliefs can influence how phenomena are understood. Supporting this notion, Flood (2010) discusses how the researcher needs to understand that peoples' experiences are linked to social, political, and cultural contexts. This need for contextualisation in exploration of the deteriorating patient phenomenon was considered central to the research process for this study. It was clear that nurses' use of NEWS would be entwined with extraneous factors, therefore further supporting interpretative phenomenology as the chosen methodological approach. However, Van Manen's (2007) lived experience methodology was rejected on the basis that it did not allow for the constant revisiting of pre-understandings throughout the process of exploring meaning and gaining understanding (Fleming *et al*., 2003) which I perceived as vital to this research. Whereas, using a hermeneutic methodological approach underpinned by Gadamer, reflected in the hermeneutic spiral (Figure 4.1), allows for movement back and forth in the research process, between the whole and the parts, repetitive revisiting of pre-understandings and places the researcher at the centre of this process.

4.5 Applying the methodology

Lawler (1998) suggests that the transition from philosophy to methodology in the use of phenomenological methodology is challenging. This is further supported by

McManus Holroyd (2007) who suggests interpretative hermeneutic phenomenological research requires a commitment to engaging with the philosophical underpinnings. Despite the obvious challenges and the lack of method or framework, the interpretative phenomenology approach reflected my worldview and an opportunity to combine my experience and perceptions as an integral part of the research, recognising that interpretation is influenced by experience, language, culture, and theory. This approach allowed me to explore understanding of experiences and perceptions of nurses, developing new meaning through interpretation of their stories disclosed through language.

Integral to the hermeneutic phenomenological approach is the Hermeneutic circle, a continuous action where the researcher goes backwards and forwards or in a circular motion to get a deeper understanding of the phenomena and interpretation of the lived experience (Standing, 2008). This circle is represented by the notion that understanding does not have an end, there is no final or absolute truth, but that understanding is open with an anticipation of completeness, represented by there being no end in a circle (Gadamer, 2004). Later in this chapter (section 4.6), I describe the process and its application to this study, as a spiral (Figure 4.1) rather than a circle. This reflects my belief that for this study there must be a beginning and end which cannot be represented by a continuous circle, as the researcher I have to 'step off' the spiral at the point when I have sufficient data to provide an answer to the research question. Motahari (2008) debated the circle versus the spiral in the following of Gadamerian hermeneutics suggesting that the process of understanding is neither circular nor linear, hence supporting the use of the spiral. The use of the verb 'spiral' shows a continuous and dramatic increase (Oxford Dictionary, 2022) which represents the spiraling increase in understanding that is experienced through the stages of the interpretation in the research process. Key to the process are the stages of interpreting, understanding, and critiquing the texts. This is reflected by the notion that understanding is always evolving and subject to revision when confronted with more convincing evidence and interpretations (Grondin, 2003). The hermeneutic circle is viewed differently by Heidegger and Gadamer. Heidegger viewed the hermeneutic circle as a circle of interpretation and understanding, whereas Gadamer viewed the circle terms as moving from the whole to the parts. Gadamer (2004, p189) likens this to sentence construction in that understanding comes from the meaning of the part (words in a sentence) in context to the whole (sentence or story).

The hermeneutic spiral involved continuous re-examination of propositions applied to understanding, where the whole is constructed through repeated consideration of its components. Through this, a researcher aims to discover the true meaning of an experience and therefore pre-understanding of our existing knowledge, experiences and meaning, form an inescapable part of the circle (Koch, 1995). Guzys *et al.* (2015) discuss the need to challenge old knowledge before new knowledge can emerge, through an attitude of openness and interrogative communication. This continuous re-examination of the evidence in an oscillating manner is unique to interpretative phenomenology with the researcher constantly considering their own thoughts in relation to the dialogue with participants and impact of this on the findings. This is evidenced in the researcher diary (Appendix 4).

Critics of phenomenology are acknowledged and considered in taking this methodological approach to the present study. For example, Crotty (1997), one of the most significant critics of the phenomenological methodological approach suggested that nurse researchers through poor application of the methodology have created a new type of phenomenology which he labelled as descriptive, subjective, and lacking critique. This suggests that in seeking a structural approach to phenomenology people have disregarded the philosophical position underpinning phenomenology. In response to Crotty's criticisms, Darbyshire *et al.* (1999) suggested Crotty held a narrow, existentialist view of Heidegger's work which underpinned the methodology, which was not reflective of the many benefits of the interpretative phenomenological approach to enhancing understanding. Giorgi and Giorgi (2000) also criticised the misuse of phenomenology with researchers representing phenomenological research methods as a fixed set of prescribed stages which was not congruent with the thinking of either Heidegger or Gadamer. It is natural for a researcher to seek guidance in terms of systems and processes, particularly when they are unfamiliar with a methodological approach however these do not have to replace the philosophical underpinning but complement them as I believe this study demonstrates.

Having acknowledged that hermeneutic phenomenology underpinned by Gadamer was an appropriate methodology for this study, I returned to the research question, to ensure that it remained fit for the purpose of the study. Fleming *et al.* (2013) describe the need for the development of a research question which is congruent with interpretative hermeneutic phenomenology and reflects the desire to achieve deep understanding of the phenomenon. There is no 'how to' guide of hermeneutic

phenomenology (Norlyk and Harder, 2010) and Gadamer (2004) objected to use of a prescribed approaches to hermeneutic phenomenology. When Gadamer extended the thinking of Heidegger he offered a way of thinking which was dynamic and underpinned by the notion of other (Dibley *et al*., 2020). Gadamer suggested that *"applying the method is what the person does who never finds out anything new, who never brings light to an interpretation that has revelatory power."* (Gadamer, 2001, p42). This lack of defined approach is subject to critique with suggestions that as a result researchers invent research design (Lawler, 1998) and divert away from the original intentions of phenomenology (Crotty, 1997). Researchers have developed their own approaches to utilisation of hermeneutic phenomenology (Fleming *et al,* 2003; Black, 2011, Dibley *et al*., 2020).

Considering the first of these approaches, Fleming *et al.* (2003) suggested a five-step structured approach, yet the simplicity of this approach lacked depth and some of the richness of my adopted strategy and at times did not reflect the underpinning philosophy of Gadamer. Black (2011) also designed a five-stage research process starting with a literature review, outlining the methods to address the research aim, selecting and engaging participants in a one-to-one interview, generation and interpretation of text followed by re-visiting of literature and discussion of the new horizon. This structured approach offered guidance to me, however reflected a linear approach to the study, compared to the oscillation that reflected my approach (Figure 4.1). Black (2011) also presents her work through a hermeneutic spiral which clearly demonstrates an interwoven process for interpretation of text to understand experience, reflecting her journey to understanding through a systematic approach underpinned by Gadamerian philosophy. Since this research was undertaken, Dibley *et al*. (2020) have published a text which offers researchers a step by step practical guide to hermeneutic phenomenology informed by Heideggerian and Gadamerian philosophies. Whilst this guide was published outside of the timeline for this study, application of its recommendations have been considered throughout the development of the thesis.

Cohen *et al.* (2000) offer another source of guidance focused on analysis of hermeneutic data including the use of thematic analysis involving the coding of each line to reduce the chance of being overly reductionistic, underlining of phrases in the text and the tentative theme names written in the margin of the text. Cohen *et al.* (2000) also highlighted that the process of analysis is not linear, but it may read like it, but the analysis and interpretation moves between two metaphors, the field text

(through data collection) and the narrative text (the researchers understanding and interpretation of the data to all other readers).

Without identifying a single approach that offered a perfect 'fit', I 'fused' elements of a number of approaches to tailor this stage of my research as presented in Figure 4.1. Several concepts were taken from Cohen's (2000) pragmatic guide – such as the pragmatic approach to coding, and use of exemplars, which are bits of textual data which capture the essential meaning of themes. Some of these exemplars became the final name of the theme. In addition, some steps of Fleming *et al.*'s (2003) five-step approach remained in my Gadamerian spiral, for example the decision to place me as the researcher at the centre, frequently returning to my pre-understandings, noting, and documenting their evolving nature. This fusion of approaches reflects the Gadamerian perspective that there is no prescribed way to undertake hermeneutic phenomenology yet to let the process evolve as it is 'lived'. Each of the steps identified in the spiral are discussed below.

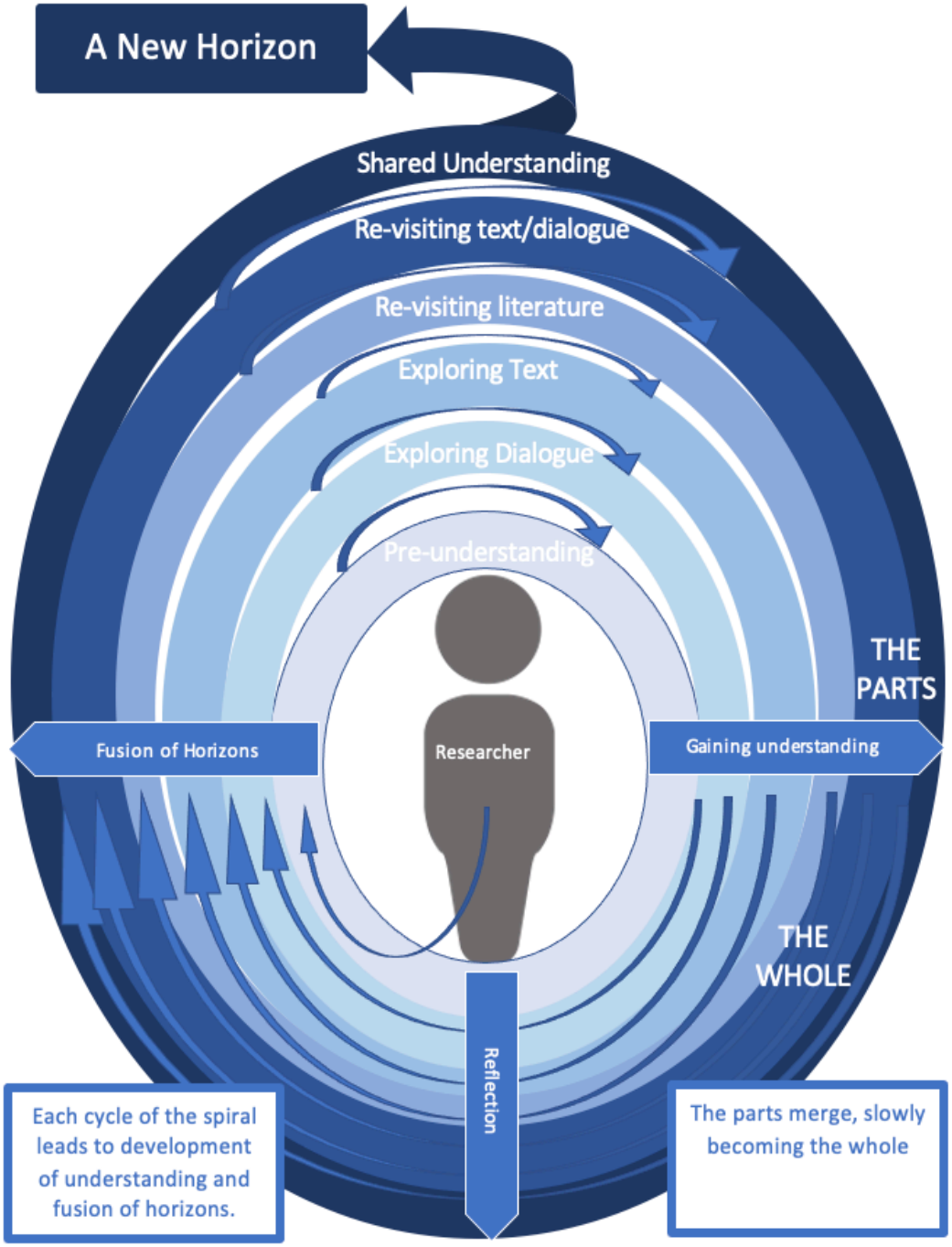


Figure 4.1 The Gadamerian hermeneutic spiral

4.6 The Gadamerian Spiral – Research Methods

Figure 4.1 displays the research methodology for this study. This section provides a critical narrative of the process of data collection and data analysis that reflects the philosophical and methodological approach. The process starts with the initial identification of pre-understandings, then works through the spirals moving from the parts to the whole, always coming back to the researcher at each stage of the spiral as a fusion of horizons is obtained. This reflects the concept of a constantly changing horizon that the researchers move into and that moves with us, yet is never closed (Gadamer 1989, p304) the researcher seeing meaning that has both rationale and emotional resonance with their own experiences (Dibley *et al.,* 2020). This section also describes the processes of sampling strategy; participant characteristics and recruitment; the interviews; analysis and interpretation of the data; ethical considerations; trustworthiness and reflexivity.

4.6.1 Identification of pre-understandings and prejudices

"All such understanding is ultimately self-understanding" (Gadamer, 1989, p260). This quote perfectly reflects Gadamer's belief that you cannot separate yourself from your understanding which is part of your thinking, in the same way that Gadamer refuted the notion that experience could be studied by a neutral and uninfluenced observer. Understanding is informed by history described by Gadamer (1989, p300) as *"a historically effected event"* from which all self-knowledge arises. The idea for the research was historical and related to my role as a RN and nurse educator. It was motivated by my need to understand more about how nurses use NEWS and therefore a bond existed between myself and the subject. Figure 4.1 is a representation of my belief in where I, as researcher sit in this study – in the centre. As a researcher I was integral to the research throughout all the stages. Each stage of the hermeneutic spiral returns to me, the stage reflecting the parts developing understanding towards the whole and the fusion of horizons with each participant and each part of the process of interpretation.

Gadamer (1977, p299) refers to the hermeneutically trained mind as one that makes their prejudices conscious to govern understanding so that the text which represents another's meaning can be valued. Understanding my fore-conceptions (Gadamer, 1989), my history and connection with this world at the start of the research allowed me to explore my baseline pre-understandings and prejudices. It became clear that

this was not going to be a one-off activity but one that was repeated multiple times through the journey, each time I journaled interpretative influences (Appendix 5). It was an iterative and cyclic exercise which played a deeply important and significant role in the development of the research. Gadamer (1989, p267) proposes that for the *"interpreter to let himself be guided by the things themselves is obviously not a matter of a single, 'conscientious' decision, but is 'the first, last, and constant task".* Whilst Fleming *et al.* (2013) suggest that the identification of pre-understanding and prejudices is the second step in the research process and takes place following the identification of your research question, I believe this must be undertaken from the outset. Constant re-visiting of pre-understandings and prejudices as my thinking and understanding developed enabled the formulation of an initial research question. This was followed by evolvement of that question, through changes of direction reflecting the fact that the research question does not remain unchanged but adapts as the research develops (Smythe, 2019). Versions of the research question are shown in Text Box 4.1.

Text Box 4.1 Iterations of a research question

2016 '*What are nurses' experiences and perceptions of the effectiveness of the National Early Warning Score in the recognition of acute adult patient deterioration.'*

2017 *'How do nurses working in acute care use the National Early Warning Score in the recognition of the deteriorating adult patient?'*

2019 '*What are nurses' experiences and perceptions of using NEWS as part of the recognition and management of acute adult patient deterioration?'*

'Identification of pre-understandings or prejudices' enables the researcher to move beyond both their pre-conceptions on the topic to understand and transcend their horizon (Fleming *et al.,* 2003). This stage enabled me to promote self-understanding and explore my own meaning from the outset and before I entered any dialogue with participants. My pre-understandings provided the foundation for my values, assumptions, and relationships for the research ahead. Commencing this stage, I engaged a colleague with a clinical and academic background within the field of deteriorating patients as my clinical expert and peer. As the conversation developed

at this initial meeting, there came the realisation that this would be a longer-term requirement, recognising the impact and infiltration of my pre-understandings throughout the stages of the research process. Recordings of these discussions were included within my researcher diary (Appendix 5) and were acknowledged in the contribution throughout the interpretative process. Discussions enhanced the clarity of my horizons and added an additional layer of moderation and opportunity for reflection, contributing to the overall trustworthiness of the study as discussed later in this chapter (section 4.5). I believe that through this exercise I became more open to the stories told by participant followed by my interpretation of them. In addition, my constantly changing thoughts, beliefs and perceptions were captured in a Gadamerian reflective corner within my study office (see Appendix 6). This allowed me to frequently explore my positionality and my changing perspective. An example of my initial exploration of my pre-conceptions is shown in text box 4.2.

Text Box 4.2 Initial pre-conceptions

- My thoughts are grounded in being a nurse, rather than an academic
- Initially I believed the idea of NEWS was insulting to nurses as professionals with degree level education
- NEWS is a checklist and requires minimal skill to complete
- Despite widespread introduction nurses lacked consistency in completion of NEWS
- Nurses rely on NEWS and do not interpret results or explore further
- Variation in how NEWS is used in clinical areas and the processes around this
- Mixed adherence to clinical response protocol reported by nurses I taught
- Nurses didn't like NEWS in general
- Nurses increasingly reliant on electronic monitoring options
- Nurses rarely understand the important of respiratory rate
- Nurses have very poor knowledge of anatomy and physiology related to patient deterioration

Upon conclusion of this initial stage of identification of pre-understandings and prejudices, recruitment to the study was initiated as discussed in the next section.

4.6.2 Sampling and recruitment

Setting

The Sample Site was an NHS Foundation Trust in the suburbs of London in the U.K. The NHS Trust is an acute single site hospital serving a population of over 300,000 people, with more than 500 beds and directly employing over 2500 staff. The Trust provides a full range of diagnostic and treatment services, including urgent and emergency care; medical care; surgery; critical care; services for children and young people; maternity; outpatients and end of life care. The Critical Care Outreach Team (CCOT) was available 24-hours a day, seven days a week. The team had access to an electronic dashboard of raised and deteriorating NEWS that was used to monitor NEWS across the organisation. The last Care Quality Commission inspection (CQC) in 2018 rated the hospital as outstanding.

Sample and recruitment

The underlying feature of the desired participant sample was Registered Nurses with experience of the phenomenon (NEWS) and therefore a purposive method of sampling was utilised. This approach to sampling involves the identification and selection of individuals that have knowledge or have experienced the phenomenon of interest (Cresswell and Plano-Clark, 2011) and therefore meet the identified criteria (Table 4.1). Patton (2015) identifies the value of a purposive approach to sampling in selecting information-rich cases for a study which are those that the researcher can learn more about issues of key importance to the purpose of the study. Sampling for interviews is frequently purposive in nature to reflect a broader range of experience and demographic variables, acknowledging that each of the nurses may have different skills, knowledge base and experiences (King, 2014).

The sample site was chosen based on three main reasons. The first reason was obtaining access to participants in a timeframe that met the needs of a doctoral study, recognised as a challenge for doctoral researchers undertaking research in clinical environments due to the complexities of research governance systems (Hamiduzzaman, 2021). The researcher utilising purposive sampling is reliant on access to key informants in the field who can help in identifying information-rich cases (Harsh, 2011) and for this study participants were accessed through a gatekeeper in the form of a senior nurse in the organisation who was responsible for education and development. The senior nurse was familiar with the researcher with

whom she had worked on several educational projects and she was supportive of the aims of the study which aligned to the priorities of the organisational education team. This alignment allowed the senior nurse to see the benefits of the research study for the organisation and for enabling service improvements focused on the deteriorating patient phenomenon to enable improved patient outcomes (Department of Health, 2017). From a researcher perspective, I had an existing contextual knowledge of the sample site, the clinical areas and believed the gatekeeper would positively influence through their motivation and commitment to the study.

The second reason for the chosen site related to the phenomenon. The sample site was recognised by the researcher as having introduced NEWS over two years before data collection started. Therefore, it was an established clinical practice and nurses working in that site had experience of the phenomenon. NEWS has subsequently seen widespread uptake across the NHS with 76% of acute hospitals now using the tool (NHS England, 2022a), however at the time of data collection it remained new in many organisations and therefore data collection in sites where implementation was recent would have also captured perceptions and experiences related to a change in clinical practice. The study was not aiming to evaluate a quality improvement initiative or change management but instead aimed to develop an understanding of nurses' established practice of using NEWS and hence was reliant on data collection taking place in an organisation where NEWS was well established.

The third and final reason was that the hospital was considered representative of most suburban district general hospitals in terms of bed numbers, services provided and population served (Office for National Statistics, 2021). London is recognised to have the lowest number of U.K. trained nurses (66%), with a high proportion of nurses from Asia (16%) made up of mostly Filipino or Indian Nurses (Baker, 2020). Therefore, the high number of over-seas nurses in the sample is representative of both the setting but also NHS hospitals in London.

Purposive sampling comes with limitations which have been considered throughout this study. Although generalisability is not an objective of qualitative research, purposive sampling is cited to lack generalisability and therefore limited transferability (Etikan *et al.,* 2016). Hand picking the sample site enhances both potential for bias and impacts on the transferability of findings (Benoot *et al.,* 2016). To counteract these limitations, a rich description of the setting and full demographic

characteristics is offered in the research study to enhance transferability (Baillie, 2015). The sample is not claimed to be representative of the population but aimed to reach people with experiences of the deteriorating patient phenomenon. The inclusion/exclusion criteria (Table 4.1) further enhance transferability and offer rationale for the characteristics sought in the sample.

Table 4.1 Inclusion/exclusion criteria

	Who	Rationale
Inclusion criteria	Registered Adult Nurses working at Agenda for Change (AFC) bands 5, 6 and 7 in acute adult in-patient wards at **** Hospital and employed by the hospital	Regular users of the NEWS tool Working in clinical area where adults may deteriorate; Have undertaken Trust mandatory NEWS training
	Registered Nurses (RNs) working in the Critical Care Outreach Service	As responders to deteriorating patients, nurses in outreach teams may offer a different perspective & have more diverse experience
Exclusion Criteria	Unregistered nursing staff i.e., healthcare assistants and nursing associates	Variable background education and knowledge; Not responsible or accountable for clinical decision-making as per NEWS guidelines
	Student Nurses	Working under supervision and not legally or professionally accountable for clinical decision-making as per NEWS guidelines
	Agency Nurses	Variable knowledge, experience, and education; May not have completed mandatory NEWS training
	Registered Nurses from Level 2 (high dependency) and Level 3 (critical care) settings.	The staff to patient ratio in critical areas is significantly different to acute ward setting. NEWS is rarely utilised in these settings
	Registered Nurses working in the Emergency Department (ED)	NEWS is not always used in ED and the staff skill mix does not represent that of a general ward area
	Registered Nurses working in paediatric and/or obstetric settings	NEWS is not validated for use in these clinical settings.
	Registered Nurses working in Out-Patient departments	NEWS is not utilised in these areas. Limited exposure to deteriorating patients

Nurses were initially notified of the study by NHS email (Appendix 7) initiated by the Hospital Research and Development Department to ensure compliance with data protection. The Participant Information Sheet (PIS) (Appendix 8) was embedded in the emails. Following this a presentation was given at the NHS Trust nurse conference where a recruitment stall was set up, offering potential participants the opportunity to obtain more information and sign up to an interview. Participants that indicated an interest in participating received a letter of invitation (Appendix 9), PIS (Appendix 8) and consent form (Appendix 10). Posters advertising the study (Appendix 11) were placed on staff noticeboards within the hospital. As a result of the conference presentation there was evidence of a snowballing effect on recruitment with nurses passing on information to others.

Sample size for qualitative studies is often subject to debate with no single answer and is dependent upon a wide range of considerations primarily focused upon the researcher's methodological and epistemological perspective (Baker and Edwards, 2012). As a researcher employing a hermeneutic phenomenological approach, I embarked on a journey of discovery that will never be complete, some experiences will remain undiscovered (because of the temporality and historicity of individual experience), therefore making the concept of data saturation (McManus Holroyd, 2007) which is frequently referred to regarding sample size, unachievable.

An alternative approach to data saturation in qualitative studies is seeking to ensure sufficient power in order that research findings have credibility. Malterud *et al*., (2016) proposed that this can be achieved through the concept of 'information power'. The over-arching principle of the model is that size and power hold an inverse relationship, the larger the information power of the sample, the lower the number of participants needed and *vice versa*. Malterud *et al*. (2016) suggest five items that may impact on information power in a study which are study aim; sample specificity; use of established theory; quality of dialogue; and analysis strategy. These are applied to this study in Table 4.2.

Table 4.2 Information Power (adapted from Malterud et al., 2016)

Item	**Information Power**	**Rationale**
Study aim	Medium	Narrow aim that focuses on RNs using NEWS.
Sample Specificity	Medium	Transparent inclusivity and exclusivity criteria. Variation in the experiences to be explored due to sample coming from a variety of clinical areas. Purposive sampling strategy risk of more limited specificity
Established Theory	High	Study underpinned by existing evidence-based theory (Tanner, 2006) therefore synthesizes existing knowledge through application of the model to the findings.
Quality of Dialogue	High	Interview dialogue perceived as high quality demonstrated through co-production of meaning and understanding based on clear communication between participant and researcher. Researcher expert in subject matter with some previous interview experience
Analysis Strategy	High	Exploratory analysis utilised with an ambition to present individual experiences focused on depth of understanding rather than a wide range of experiences of the phenomena

Each item is likely to impact each other, however consideration of each should determine the information power, but not dictate the sample size in the same way that power calculations do for quantitative studies.

As Back (2012, p.13) suggests the philosophical underpinning of the researcher is core to determination of sample size, suggesting a Foucauldian poststructuralist may focus on 'discourses and forms of power' attached to the words, whereas a phenomenologist inspired by Merleau-Ponty would focus on how a speaker's lifeworld was expressed. Reflecting on this, as a phenomenologist inspired by Gadamer, my focus was on individuals' experiences, not generalisation. My aim was to collect a wide range of experiences and different perspectives to answer the

research question. The phenomenological movement is driven by an understanding of multiple and alternative views of a phenomenon as it is perceived by individuals, therefore predicting sample size for a hermeneutic phenomenological study does not align with a philosophical approach which requires interviewing to continue until the complete range of experiences have been captured to answer the research question (Dibley *et al.,* 2020).

However, a sense of sample size was required for pragmatic reasons at the outset of the study both to guide the timeline for the study and to obtain ethical approval. Considering the application of the five items identified in the model proposed by Malterud *et al*. (2016), it was decided that 15-20 interviews would be appropriate but this would be subject to ongoing evaluation based on the success of recruitment, quality of data collected, experiences shared and the interpretation process.

Recruitment to the study was impacted by the COVID-19 global pandemic in the last month of data collection. Following the sixteenth interview, it was clear that the clinical areas would no longer be able to release registered nurses, and face-to-face interviews would no longer be permitted as a result of the COVID-19 pandemic. Fortunately, it was apparent that the data collected up to this point were sufficient to achieve the aims of the study (Field and Morse, 1994). Use of the Gadamerian spiral with data analysis running alongside data collection also confirmed that themes were recurring to an extent that the research question could be answered, acknowledging that no one final truth nor single interpretation would be achieved but the process of stepping off could occur in line with the philosophical underpinnings of the study (Gadamer, 2004).

Sample characteristics

Sixteen RNs were interviewed. At the start of each interview, participants were asked a series of questions to collect personal data. This included the nature of their current clinical area; their Agenda for Change (NHS Employers, 2022) banding; their number of years since U.K. registration; number of years since any overseas nursing registration; country in which they received their nursing qualification where applicable (see table 4.2). This information, which was central to the sampling strategy, informed the data analysis to explore the relevance of these factors on the participants' experiences and perceptions.

Table 4.3 Sample characteristics

Participant ID	Total Years as an RN	Year since registration with the U.K. NMC*	Year since registration Overseas (if applicable)	AFC Band **	Clinical area
N1	12	9 months	12 years	5	Medical
N2	10	18 months	10 years	5	Medical
N3	5	1 year	5 years	5	Medical
N4	41	41 years	Not applicable	6	Mixed medical/surgery
N5	14	14 years	Not applicable	7	Respiratory
N6	25	25 years	Not applicable	8a	Resus Lead
N7	25	25 years	Not applicable	8a	Acute admissions
N8	12	5 years	12 years	7	Stroke
N9	5	5 years	Not applicable	5	Acute admissions
N10	12	12 years	Not applicable	5	Stroke
N11	8	3 months	8 years	5	Stroke
N12	5	4 years	5 years	7	Orthopaedic
N13	10	3 years	10 years	6	Surgical
N14	< 1 year	1 year	Not applicable	5	Respiratory
N15	< 1 year	1 year	Not applicable	5	Acute admissions
N16	8	4 years	8 years	6	Surgical

**NMC –The Nursing and Midwifery Council is the regulator for nursing and midwifery professions in the U.K.*

*** AFC – Agenda For Change is the current National Health Service (NHS) grading and pay system for NHS staff.*

Half of the sample were overseas nurses which is broadly representative of the NHS in London, where 66% of nurses are of British origin (Baker, 2020). Despite many of these overseas nurses having many years' experiences, their exposure to NEWS was limited to the U.K., which became an important factor in their responses. Following the first three interviews it became apparent that the decision to exclude nurses above AFC Band 8 would not offer perspective from senior nurses that were responding to the ward-based escalations of patient deterioration. Through discussion with the supervisory team, it was decided to amend the

inclusion/exclusion criteria. An amendment to the ethical approval was obtained and two Senior RNs (AFC Band 8a) recruited to the study. The sample distribution is displayed in Table 4.3.

Table 4.4 Sample distribution across AFC bands

Agenda for Change Banding	Number of Participants
5	8
6	3
7	3
8a	2
Total Participants	**16**

4.6.3 Data collection

Fleming *et al.* (2003, p117) refers to the stage of data collection as 'gaining understanding', reflecting Gadamer's sustained question in his work being driven by understanding (Gadamer, 1989). This can apply both to understanding through conversation, or interview, or between the reader and the text (if data collection involves written sources), or by thinking (an internal conversation) so refers more to an understanding through language.

Hermeneutic enquiry focuses on what humans experience, rather than what they know, meanings which may not be apparent but explored through narratives (Lopez and Willis, 2004). One of the original contributions of Gadamer (1989) is his exploration of dialogue and conversation as an inherently human mode of understanding. Whilst written text may enable partial achievement of understanding, Gadamer (1989) refers to the role of genuine conversation in the creation of new understanding involving two or more respondents in spoken language. Written text does not enable the researcher to go backwards and forwards in the conversation, probing and exploring to gain understanding, as opposed to conversation.
Two methods of data collection would allow achievement of this dialogue; focus groups and interviews. Focus groups offer a number of advantages when exploring a phenomenon, including the richness of multiple perspectives when exploring experiences of a community (Kitzinger, 1995). Focus groups have been utilised in researching the deteriorating patient phenomenon (McGaughey *et al.,* 2017; Iddrisu *et al.,* 2018; Langkjaer *et al.,* 2021) allowing the collection of multiple perspectives but their use in interpretative phenomenology is limited (Bush *et al.,* 2019).

Phenomenological approaches involve the consideration of individual experiences, in recognition that multiple realities exist, the view underpinning phenomenology (Dibley *et al.,* 2020). The use of focus groups may not allow participants to voice their experiences openly as a result of group dynamics, in particular if they have not shared the same experiences or realities. To gain immersion to achieve a deep understanding of the experiences of the participants, it was felt this could only be gained on a one-to-one basis. The study was designed to gain insight into lived experiences and perspectives of the nurses as participants, gaining understanding of the interaction of NEWS and the participants' clinical decision-making and judgement. Hermeneutic conversation was believed to only be achievable using interviews as a data collection tool.

Data collection tool

In-depth interviews allowed for full exploration of the nurses' experiences and probing of their perceptions. Interviews ranged from 21 mins to 57 mins, with the average 33 mins. To allow for open discussion, interviews started with a single open-ended question in line with Gadamerian underpinning principles (Gadamer, 2004) to enhance reflection and commence the 'fusion of horizons'. This question was "What is your experience of using NEWS?" Participants were facilitated to explore in-depth their initial answer to the opening question to elicit fully their perceptions and experiences, with openness of the exchange being critical to the data collection (Laverty, 2003). The in-depth approach to interview is synonymous with Gadamerian hermeneutic principles (Cohen *et al*., 2000), however being pragmatic and seeking to achieve the most understanding from each interaction, an interview schedule was developed (Appendix 12) utilising findings of the literature reviews. This was intended as a guide with prompts to be referred to if the conversation did not flow naturally, using clarifying questions which may elicit greater meaning, rather than a list of questions that had to be answered, which would not be reflective of a hermeneutic approach. In the earlier interviews, when my confidence was lower, the interview schedule provided a support mechanism but as the interviews progressed, my confidence increased and I started to experience the co-construction of the narrative in the interviews, the iterative exchange of ideas and experiences and uncovering of meaning through inter-connectivity. At this stage, the schedule was discarded so the conversation could flow uninterrupted allowing the experience to unfold leading to a fusion of horizons (Gadamer, 2004).

Whilst plans were implemented for videoconferencing or telephone interviews, each interview was face to face. Interviews were audio recorded and transcribed verbatim by the researcher as soon as possible after each interview to be combined with field notes and reflections that were captured following each interaction. The goal of the interviews was to generate meaning and understanding, extracting knowledge, and telling stories of experience, asking questions of the use of NEWS.

4.6.4 Exploring the dialogue – a reflection

Gadamer (1976) recognises conversation and dialogue as the basis of every understanding, with the narrative bringing everything to life as it unfolds, leading to new meaning for all involved. Gadamer (1989) also recognises that the conversation is something that you fall into rather than control, seeking to uncover what it 'means to be' as it is revealed through the narrative of the conversation. In the case of this study, the dialogue aimed to explore the stories of being a nurse using NEWS, revealing meaning and new understanding. Key to the process was the ability to remain open to all responses, whether unexpected or unfamiliar, to allow the dialogue to flow and not to attempt control but to allow the dialogue to flow. Gadamer (1989, p305) describes this as transposing ourselves, putting ourselves in the position of the other person to gain understanding of their horizon, which has been informed by their past experiences. Gadamer also warns that through dialogue one must be prepared to be told something 'alien' (Gadamer, 1977), something you may not expect, yet not react but be open to this perspective.

During interviews, participants were encouraged to feel at ease through the application of measures such as smiling and nodding which gestured my agreement and understanding with the participant; managing silences for thought; not interrupting the flow of conversation and smiling to encourage them to share. Understanding of the participants' perspectives was enhanced by asking them to refer to examples in practice and encouraging them to reflect which helped me to gain greater understanding. Where it felt appropriate, I used opportunities to refer back to stories to search for deeper meaning and understand their thinking related to the scenarios they had narrated.

Whilst a novice doctoral researcher, I had experience of formal interviewing in various contexts in my professional role, realising that whilst some of those skills were transferable a reflective hermeneutic conversation required additional skills and

qualities. As an experienced RN and educator, I constantly engage with others, exploring their experiences in genuine conversation that impact directly on my thoughts, processes, and actions. Reflecting on this gave me confidence in my existing skillset to gain a sense of genuine-ness for this which Binding and Tapp (2008) refer to as authenticity, unaffectedness, and sincerity. These became the principles underlying my conversations, as demonstrated in table fifteen.

Text Box 4.3 Excerpt from transcript demonstrating sincerity

Respondent:	They said that he was going to be made palliative but obviously no-one had made that decision and because it was a nightshift no-one wanted to make that decision and even his… I think it was his daughter that was like, 'Can't someone just make the decision like I'm saying this is what I want and I know it is what he'd want' and he was so distressed, he was in pain like he just wasn't… and everyone just ignored me, he died that morning but the doctor said to me, 'Like I didn't realise how bad it was', I said, 'That's because you didn't answer my phone call or my 100 phone calls'.
Interviewer:	*And actually, in that situation that NEWS should have triggered him to come immediately to the ward and do something about it. And how was that for you on a nightshift?*
Respondent:	Horrible.
Interviewer:	*Yeah.*
Respondent:	I think I was there until like 11 o'clock in the morning like trying to sort everything out and I just couldn't stop crying, so bad and then I was escalating it to like the site pracs and they were just like 'Well, the doctor needs to make a decision' and then in the end the bed manager came along, and I was like, 'Can you help me?' And she was like, 'Okay' and she was like, 'Oh the doctor needs to come now'. That was horrible.
Interviewer:	*And in that situation that NEWS didn't work for you, did it?*

This excerpt from a transcript demonstrates a time when a participant explained an emotional situation, to which I responded by actively listening and utilising primarily non-verbal means to respond. I needed to be open to the meanings of the experiences and perceptions of participants, whilst recognising my own *dasein*, self-

awareness of my own understandings to make the most of the participant stories, dampening down my own prejudices where appropriate (Dibley *et al.*, 2020). Participants were encouraged to tell stories, referring to experiences that had influenced their thinking and understanding. Gadamer (1989, p389) refers to this as a 'hermeneutic conversation' where participants find a common language in conversation that coincides with understanding and reaching agreement. As each of the participants revealed their own horizon, through exploration these became fused with my own, deepening my understanding of their experiences and exploring the meanings behind it by probing the participant to explore deeper. Gadamer (2004) emphasises the shift from descriptive to interpretative including the evolving of meaning, the creation of shared meaning, achieved though the interplay of partners in dialogue. As the dialogue developed there were instances where I shared my experiences and perceptions where relevant, as shown in Text Box 4.4.

Text Box 4.4 Excerpt from transcript demonstrating fusion of horizons

Interviewer: And then when they come, do they involve you or do they sort of take over and sort the patient out or a mixture?
Respondent: No, they would involve us actually.
Interviewer: Oh good.
Respondent: No, definitely, I've always felt, you know, they want your take on what's happening. Or maybe that's me saying, you know, "This is what I think," sort of thing, but muscling in there, sort of thing. I don't know. I wouldn't…I think a bit of both sometimes.
Interviewer: Because I wonder, is there a deskilling of…I don't think experienced nurses, I really think that we're so used to using our clinical judgement, that actually it will never go away, and like you recognise that actually NEWS is just one small part of a much bigger picture. But I do wonder if the younger people that have been around track and trigger systems for a larger part of their career than without it, if we have gone to a place where, "Oh, okay, this patient is NEWSing at seven, I need to ring or I need to escalate," and that's their action. So that's almost like where their action stops.
Respondent: Stops, yeah, yeah. I would agree with that sadly. I'm not sure how that happens. It's interesting, because I remember being part of the whole discussion around when nurses started, you know, became a university degree and everybody was going, "It'll be terrible, it'll be bad for nursing." I mean, I never thought that, but I sort of think we've almost gone…we've swung that way, where we've got clearly highly intelligent people using…it's like everything, there's a tool for everything, but they must be taken in as a whole. It's a bit like you take your patient, you know, what they do at home and what they can manage at home and everything. It's a whole package, it's not just a series of forms that you've filled in about them, you know, it's a person there with a family and a…

Text Box 4.4 demonstrates an example of shared meaning between myself as researcher and participant, demonstrating the researcher as part of the research process, transposing themselves as a means to gaining understanding of the interviewee's horizon. In this dialogue using my own experiences and perceptions to explore the impact of NEWS on nurses with different levels of experience. Through the dialogue emerged a shared understanding of NEWS passing over responsibility when a patient is triggering. The fusion of horizons was reflected by a shared understanding, where the historical horizon is superseded by the new and fused horizon (Gadamer, 1989, p307). This experience varied with each participant. Reflecting on this, I believe it was a result of how comfortable they were, their confidence and their openness. There were, however, occasions when participants appeared reluctant to open up, anxious and seemed to answer what was expected of them. This may be reflective of the Hawthorne effect (Al-Yateem, 2012) with participants altering their response or behaviour for fear of repercussion, personal preference, or the fact that they had no further information to share, or a failure on my part as interviewer. I was conscious that my situatedness as a nurse and nurse-educator had offered me access to the sample and also enabled me a greater understanding of the participants' *dasein*, but ultimately could influence the participant's willingness to share, despite the measures I had taken to protect anonymity. The skills of the interviewer in this situation can have a significant impact on the depth of dialogue and ability to create a trusting relationship to enhance willingness to share feelings (Mealer and Jones, 2014) and obtain the depth of discussion required for an interpretative phenomenological study.

Only one interview per participant was conducted in contrast to Fleming *et al.'s (*2003) view that gaining understanding requires more than one conversation with the participant, advocating a follow up dialogue. This was not undertaken on the basis that this was an interpretative study focused upon lived experiences and perceptions that were situational and may have changed following the interview. Smythe (2019) suggests that alongside the financial and time implications of further interviews, the first telling of a story should be sufficient with the first account of a story offering maximum clarity.

4.6.5 Fusion of horizons through data analysis

Interpretation is an unpredictable process which starts as the stories are elicited through the dialogue and the narrative text is co-created by the researcher and

participant. Gadamer (1989) recognises that language is not just words but offers a complexity of meanings and refers to a process of translation from the language of a text into our own in order to express text's meaning.

In recognition of the emphasis that Gadamer (1989) places on language and gaining understanding and meaning, immediately following each interview, a reflective exercise was undertaken, to consider my feelings and understanding of the dialogue and to re-organise my thoughts. Gadamer (1989) highlights the responsibility that rests upon an individual to know their way around the text, to gain immersion and be able to make sense of it. These reflective thoughts were added to the field notes offering further opportunity to reflect on pre-suppositions and their influence upon the process of data gathering and interpretation (Geanellos, 1998). Added to these were the thoughts that had transpired through the process of transcribing the interviews. These have been combined and an example is displayed in Table 4.5. This is demonstrated within the Gadamerian spiral (Figure 4.1), with each stage of interpretation returning to the researcher to re-evaluate their position and pre-conceptions.

Table 4.5 Field notes and post transcribing insights

	Field notes	**Post transcribing insights**
001	First discussion in the study – 3 in one day, back-to-back with no reflection time. Completely inexperienced and nervous for this – prepared schedule – difficult to follow Students did not volunteer but asked to take part by ward manager – doing as part of a study day – potential influence of ward manager may have influenced their answers All overseas nurses with limited time in the U.K., seemed to say what I wanted to hear This discussion was really tough, and I struggled to get the dialogue going. 001 and 003 appeared to	All three nurses interviewed on this day were new to the U.K. and going through transition to NEWS. They seem to be rule followers – nervous to question, just follow rules. Is this cultural. Drive to refer everything to higher levels of authority Skill Mix- how is this playing a part? Most wards HCAs are doing Obs, but are they not escalating to nurses in reasonable time frame and then the NEWS action is not being fulfilled

	want to follow rules but showed glimpses of potential to use clinical judgement – but maybe don't want to be honest about non-escalation when using clinical judgement instead of NEWS as a guide. Didn't explore this any further as participants uncomfortable? Need to think about this before next interview. Seemed unlikely to make own decisions when patient deteriorates but alert whatever superior person– nurse in charge or doctor. Feeling that uncomfortable in discussing things that are not perfect for fear of getting in trouble, maybe influenced by the circumstances in which she is being interviewed. Feels more difficult to escalate and get action when the NEWS is not high. Not sure that she understands the whole purpose of ABCDE assessment when discussed, maybe an overseas thing?	Is ABCDE assessment being used for documentation purposes rather than assessment in this clinical area? Definitely something around the influence of my position here – not known to her but maybe circumstances that interview was organised? Element of double escalation, is this as a safety net or is it because of uncertainty of who to escalate to? Multiple pathways for escalation? Not sure these interviews reached a fusion of horizons but made me understand the more automated way of nursing with NEWS making decisions – do the nurses want this? Or do they not want it, but it has been pushed on them. Does it support them?

The complexities of analysing data whilst staying true to the underlying principles of hermeneutic phenomenology; pre-understandings, hermeneutic circle, and fusion of horizons (Alsaigh and Coyne, 2021) were challenging throughout the process of analysis, moving constantly from the whole to the parts reflected by the hermeneutic spiral seen in Figure 4.1. Bringing the text into understanding is at the centre of hermeneutics and therefore the rigour involved in this stage of the research process was paramount to understand emergent new meanings (Geanellos, 1998).

When Gadamer (1990) referred to the word 'texts', applied to this study it included the written transcripts, audiotapes, written comments, and observations made by the

researcher which included the recording of non-verbal expression. The stage of analysing the texts, therefore included analysis of not only the transcriptions but the field notes, post-interview reflection and evolving pre-conceptions. Fleming *et al.* (2003) highlights the need for a systematic process in the identification of understanding, offering a four-stage process to follow. Whilst this offers structure, it suggests that the process of analysis starts once all the interviews are complete. In this study, the process of analysis ran concurrently with the data collection stage, as interviews were completed the verbatim transcription was commenced. Alsaigh and Coyne (2021) follow an alternative structure and process to follow through the identification of six steps to facilitate data analysis in hermeneutic phenomenology. These are immersion; understanding; abstraction; synthesis and theme development; illumination and illustration of phenomena: Integration and critique. This framework aligned to the belief that analysis and interpretation are constant from the outset of the study and therefore the steps were applied to offer a structure to the analysis and interpretation process.

Immersion

This stage involves the transcription of the data, the first stage in the analysis itself, rather than the process of just recording the verbal text into written text. Once the interviews were transcribed, a prolonged period was spent immersed in the data, reading each transcript multiple times, revisiting the audio tapes to explore the context, questioning the text to gain further understanding of its meaning (Gadamer, 1989). Gadamer (1989, p269) discusses the open-mindedness that an individual needs in understanding a text. Therefore approaching the text the researcher needs to be prepared for it to tell you something neither neutral nor the extinction of oneself but constantly reflecting on your fore-meanings, prejudices and influences throughout (Alsaigh and Coyne, 2021). As each transcript was completed, I documented my headline thoughts on each individual dialogue giving me an overall sense of the participant's experience and an interpretative summary of that interview.

Understanding

This stage involves the achievement of richer and detailed understanding acknowledging and recognising that *"understanding is always interpretation, and hence interpretation is the explicit form of understanding"* (Gadamer, 2004, p306). In order to gain deeper understanding through interpretation, I went back to the text

exploring meaning to gain a more in-depth understanding, breaking it down into parts through a process of coding and bringing it back to the whole as per the hermeneutic spiral. Fleming *et al.* (2003) suggest that a process of coding is completed on a line-by-line basis however it was believed that the essence of the story would be lost through application of this approach, as rarely did the meaning of participants story emerge in a single line. Therefore, coding and development of headline themes was achieved through questioning the text and the underlying meaning of what the participant had said through, both the written text, the way it was said (through audiotapes) and the way it had been interpreted at the time (field notes) demonstrating evolving interpretation and moving away from description.

As I progressed from a movement from the parts to the whole and back again, my horizon continued to fuse with that of the participants. I moved to a new understanding by combining my old understanding with the new through the process. Moving from the descriptive to the interpretive brought recognition that the text did not hold definitive meaning and that meaning was not stable but the transmission of past and present (Gadamer, 1989, p290) mediated through interpretation and re-interpretation. One of the key elements of this stage was discovery of a new nuance in one transcript which led me to return to others and seek similarity or contrasting perception, demonstrating the non-linear approach throughout the data analysis. An example of this is shown in text box 4.5.

Text Box 4.5 Example of nuance discovery

> *So if I can see that the patient is deteriorating or really he's not well then I do what the NEWS scoring said to do. Then I escalate to the doctors and nurses in charge as well, so they will know and yes…and if the patient is not that, he's scoring but is not presenting symptoms, then maybe we can just observe him but not that frequent. (N1)*

Text box 4.5 is an example of where Participant 1 alerted me to the use of modal verbs throughout the dialogue. This led me to interrogate other transcripts to search for similarities and interpret not only what the participant was saying but how they said it and the words used. At a latter stage this also involved searching for that nuance in the literature, as per the Gadamerian spiral (Figure 4.1) to understand RN behaviours, which is later discussed in section 6.3.1

Abstraction

This stage includes the development of researcher constructs, a process which Alsaigh and Coyne (2021) suggest can be supported by the use of NVivo software. However, NVivo was not used for this study as it was believed that it would not allow the immersion that I needed to gain within the data (Dibley *et al.,* 2020), nor would it reflect the centrality of language in meaning and understanding. Instead, it risked focusing on the 'parts' of the data (as the codes or the verbatim quotes), rather than moving from the parts to the whole, back and forth through the data to gain understanding and uncover meanings. The use of NVivo would be more representative of phenomenological reduction synonymous with the philosophy of Husserl, rather than that of interpretative phenomenology which recognises the researcher situatedness in the social world. Goble *et al.* (2012) suggested the use of such software leads to researchers becoming separate and distinct from the research, limiting interpretation to words and removing the power of language in understanding (Gadamer, 1976). As a result, a manual process was undertaken to group codes into categories and explore the verbatim quotes for other meaning. This process took several weeks as I considered the codes, initial sub-themes and themes and their meaning, challenging them against my pre-understandings, as per the hermeneutic spiral. The themes were revised on multiple occasions as I continued through the spiral.

Synthesis and theme development

This stage involved the synthesis of sub-theme and theme development and meshing of horizons (Alsaigh and Coyne, 2021). Moving from the individual transcripts and considering the participants' narratives, seeking familiarity in their experiences which lead to the development of themes, whilst recognising the uniqueness of their experiences. Taking the headline meanings for each of the transcripts, I started to merge these, creating a fusion of horizons, and outlining the story that was associated with each of themes that emerged (see Appendix 13 and 14). Heidegger (1993) refers to the concept of dwelling, not as a passive activity but as doing business or traveling and "now here, now there" suggesting our mind is moving from one part to the next (Dibley *et al.,* 2020). The term 'dwelling' was very relevant to working with this stage of the Gadamerian spiral, which involved thinking and taking time to work with the data. This allowed me, as the researcher to ponder

and ask questions of meaning that resonated to deepen understanding (Dibley *et al.,* 2020).

Illumination and illustration of phenomena.

The fifth step involves the linking of the themes to the literature and analysis of inter-relationships, as reflected on the next loop of the hermeneutic spiral. Re-visiting the literature and returning to the text for further analysis is not common to most research methodologies that advocate completion of the literature review prior to data collection. Smythe and Spence (2012) reject the notion that the literature review is used to expose gaps in the literature and opportunities for research, instead suggesting that the purpose of the literature review is as a dialogical partner to provoke thinking and sits naturally in the interpretative stage of working with the data. Returning to the literature at this point, I found myself searching with more openness as a result of my immersion in the transcripts, searching the literature with a critical eye to help further develop my understanding and thinking around the phenomenon, allowing me to see a bigger picture. Gadamer (1982) refers to this as 'viewing' which seeks to extend your horizon, through seeking of fresh insight. This interpretation is evident throughout both Chapter 5 and 6 of the thesis.

Integration and critique.

This final stage of the process refers to the presentation of the research findings as per Chapter 5 and critical appraisal of the findings in relation to existing evidence presented in Chapter 6. Dibley *et al.* (2020) purpose that the hermeneutic phenomenology researcher does not present a scientific analysis that makes relationships between parts but points the reader to areas of interest in order to inspire thinking.

The framework applied as presented by Alsaigh and Coyne (2021) offers a structure however it is acknowledged that application of structure may be considered as antithetical to the beliefs of Gadamer (2004). There is however a need for application of pragmatism in the undertaking of a research study, balancing this with the methodological approach to demonstrate transparency in the approach taken whilst ensuring alignment with the philosophical underpinning.

4.6.6 Revisiting the text and dialogue

"Hermeneutics is not merely a method of interpretation but is an ontological relationship between an interpreter and a language which is to be interpreted" (Gadamer, 1975, p118) This stage of the research process involved back-and-forth movement between my understanding and those within the text and as suggested by Smythe and Spence (2012) this was approached in full recognition of my pre-conceptions and with an openness to understand the meaning. With new insight and greater congruence between the data and the substantive literature, I reviewed the themes over again with a renewed understanding, with a new emerging horizon followed by another return to the text to explore the new understanding, gaining further immersion into the data. As this stage evolved, a story of using NEWS emerged which enabled an understanding of how NEWS was being used in practice and exploring the implications of this. This story is presented in Figure 5.1 as the process of using NEWS.

Throughout Chapter 5 and 6, the findings are presented supported with verbatim quotes. It is important to note that whilst quotes help to capture a notion, detailing exactly what is said verbatim, Gadamer *et al.* (2004) warns against reliance on written word, supporting the power of spoken words over written. Language is pivotal to hermeneutic interpretation as it shapes our experiences and situations, with language and understanding recognised as inseparable aspects of being in the world (Laverty, 2003). The meaning of language may always be further interpreted, and the reader may form their own interpretation of the text. Gadamer (2003) offers guidance that in the interpretation of the text we must be aware of our preconceptions and how they contribute to our understanding of the text or to our misunderstanding of the text. The verbatim quotes are therefore included alongside the wider interpretation of the meaning of the text and subsequent understanding. Understanding cannot be achieved by parts of the text alone but through creating harmony between the whole and the parts as demonstrated in the hermeneutic spiral (Gadamer, 1989).

4.6.7 Gaining shared understanding and a new horizon

Gadamer (2004, p376) utilises the word *"Horizontverschmelzung"* referring to the fusion of horizons that occurs through the exploration of meaning, development of understanding and the fusion of our past and present horizon. The final step in the

interpretation of the data was to deepen the understanding that emerged from the story that was revealed in the previous stage through exploration of the factors that impacted on the use of NEWS in order to answer the research question. Koch (1998) credits stories for their use in health research, but also their ability for showing where health care professionals may go wrong. Through interpretation of the themes, the roles, and the process of using NEWS combined with further analysis of the findings, three points of risk were identified in the process of using NEWS displayed in Figure 5.2., where an element of the process has potential to go wrong. These risks are presented as pinch points, as components of the story that were revealed. In storytelling, a pinch point reflects a turning point in a story, a reminder of an antagonistic force working against a goal (Weiland, 2020). In the case of this study, the goal is the timely recognition and management of the deteriorating patient. Interpreting the findings of this study and applying them to the story revealed in Figure 5.2 reveals three pinch points. Each of these pinch points represents a relative risk, which might go unnoticed at the time or might not have an immediate effect but is a potential turning point within the process of doing NEWS with a potential negative impact on patient outcome. The three pinch points are represented in Figure 5.2 as red indented boxes. Each of these pinch points are discussed in Chapter 5 in relation to the meaning for clinical practice.

Whilst Gadamer purports that there is no end to meaning, for the purpose of this study an end is essential to understand the new meaning, with the final horizon presented as an original contribution to knowledge. Figure 4.1 reflects this notion; the spiral continues demonstrating that understanding has not ended and is not complete, yet for the purposes of this study a new horizon has been reached and is the totality of what can be realised at this given time. Gadamer recognises a horizon as conceptualisation of understanding. In Truth and Method, Gadamer (1989, p305) states "*To have a horizon means to see beyond what is close at hand - not in order to look away from it but to see it better within a larger whole and truer proportion".* The new horizon was achieved through the process of the hermeneutic spiral, the fusion of horizons and the new understanding of the phenomenon which emerged through the exploration of experiences and fusion of horizons throughout the process. The new horizon is discussed in the next two chapters alongside the findings and the literature supporting and challenging the new understanding, exploring the extent to which it is supported by the theoretical underpinning described in Chapter 3.

4.6.8 Reflexivity through the Gadamerian Spiral

Dibley *et al.,* (2020) refer to reflexivity as being open to unexpected ideas when undertaking hermeneutic phenomenology. Likewise, Gadamer referred to being open to something 'alien' (Gadamer, 1977). Reflexivity applied to the research process involved a self-awareness of the dynamics between the researcher and the researched as the event is happening (Dowling, 2006). This contrasts with the use of reflection in this research process which involves thinking about something after an event (Finlay, 2008). A reflexive researcher considers their reflexivity in advance of the processes of data collection and analysis.

Reflexivity starts from the development of the research question, acknowledging the interconnected-ness between the researcher and the phenomenon under exploration. As the ideas underpinning the research are developed, the reflexive researcher recognises what their influence is by asking themselves questions to elicit their influence on the research question (Dibley *et al.,* 2020). A uniqueness to hermeneutic phenomenology underpinned by the philosophy of Gadamer (2003) is his view of prejudice. Rather than to consider the term in negative way, Gadamer uses it to refer to our connectedness with the world, an integral part of who we are and an essential component to the identification of our pre-conceptions.

Recognising the centrality of reflexivity in the hermeneutic phenomenology research process, section 4.6.1 provides identification and discussion of my pre-understandings and prejudices in relation to this research study. The literature review process thoroughly considered the impact of my pre-understandings and how rigour could be demonstrated through use of critical appraisal tools, application of Cochrane recommendations, all the while considering my prejudices through the use of a reflective diary (Appendix 5). Participant selection was purposive with valid justification in the need for participants to have lived experience, however the impact of implicit bias is considered. Dibley *et al.* (2020) discuss the researcher's professional identify and the necessity for participants to feel confident about the researcher's skills to conduct the research. Prior to recruitment I had considered my position as a nurse academic and the potential of some of the participants having previously been a student of mine. In the PIS I provided some details of my professional identity so that people were aware prior to participating. Consideration of a power imbalance was addressed through ethics considerations (section 4.8). During the process of the interviews, careful consideration was paid to non-verbal

behaviours and the appropriateness of probing or not, where emotions were involved. Field notes helped me to journal my thoughts in the interviews rather than to disrupt to participant story telling. These were then revisited in my post – interview and post-transcribing thoughts (Table 4.5) which enabled further reflection.

Throughout the processes of data collection and analysis, I constantly examined and re-examined my pre-conceptions through use of the researcher diary (Appendices four and five), reflective corner (Appendix 6) and supervisory sessions and looked both backwards and forwards to consider my positionality and impact on the research. Reflexivity in data analysis was evidenced through the Gadamerian Spiral Figure 4.1 with an awareness that the interpretation of the data required a combination of my own experiences and thoughts, those of the participant and then those in the existing literature. As a lone researcher I constantly challenged my interpretation, revisited the dialogue and the text for alternative meaning, documenting these throughout the process. There were, as expected, a number of times when reading the text that the experiences of the participants resonated with my own, making me smile internally at my understanding of the meaning. I likened this to the 'phenomenological nod' which Dibley *et al.* (2020) refer to (attributed to the work of Otto Bollow, a German philosopher) when readers experience resonance with the written account of the study (Van Manen, 2016).

Contributing to the overall reflexivity of the study was my ability to be open, challenge myself, identify my evolving pre-understandings, noting the changes to my own horizon constantly. Through supervisory sessions, this was discussed, supported and more thoughts generated as a result. Throughout the study I have acknowledged that there is not one final truth, no single interpretation and through a reflexive approach weaknesses and biases are made transparent to enable the reader to trust the outcomes.

4.7 Trustworthiness and rigour

The rigour of qualitative research is frequently documented throughout the literature with early work of Lincoln and Guba (1981) who advocated replacing the terms validity and reliability, which were synonymous with quantitative data to the term 'trustworthiness'. This refers to the degree of confidence that the reader may have in the way in which the study was undertaken (Dibley *et al.,* 2020). This shift to trustworthiness was accompanied by the proposal that the concept of

trustworthiness contained four aspects: credibility; transferability; dependability and confirmability. Critics suggest that following this, a number of frameworks for consideration of trustworthiness emerged followed by a shift of emphasis on trustworthiness from constructive to evaluative procedures with an associated risk of missing threats to reliability and validity of studies until it is too late to change them (Morse *et al*., 2002). I will demonstrate that throughout this study, rigour and trustworthiness have been considered from the initiation of the research question, through the research process until the presentation of the findings and discussion.

Whilst Gadamer (2004) suggested that the hermeneutic experience, through uninterrupted listening held its own rigour, phenomenology is frequently criticised in respect of rigour. A common criticism of the phenomenological approach is the challenge of demonstrating transferability and validity of the research (Davies and Fisher 2019) however hermeneutic phenomenology does not seek generalisation, it focused on the understanding of lived experiences which are unique to that individual. Like other qualitative methodologies, hermeneutic phenomenology requires a researcher to demonstrate a depth of rigour which captures their thoughts and understanding of meaning at each step of the research process. Reflection is a fundamental skill of the phenomenological researcher alongside self-awareness which underpins methodological and ethical validity of the study (Dahlberg *et al.,* 2008). This is driven by a sense of openness acknowledging their own understandings, culture and experiences that have developed within their history.

Tracy and Hinrichs (2017) present the 'big tent' criteria, an eight-step conceptualisation assessing the quality of qualitative research suggesting that applying traditional criteria is illegitimate. The steps include worthy topic; rich rigour; sincerity; credibility; resonance; significant contribution; ethics and meaningful coherence and has been considered in the exploration of trustworthiness in relation to this study.

Worthy topic

Tracy and Hinrichs (2017) suggest that a worthy topic should be timely, relevant, significant, and compelling. These criteria should be placed above topics which are popular, convenient, or opportunistic. Consideration of the deteriorating patient phenomenon as a worthy topic is unquestionable, since the COVID-19 pandemic fell during the implementation of the study highlighting the significance of the use of

NEWS in recognition of deterioration. Whilst the study does not contribute to the evidence base in relation to the use of NEWS in a pandemic, it offers an understanding of nurses' experience and perceptions of NEWS in general. Its timeliness is confirmed through the evolving evidence base and national priorities around patient safety as evidenced in earlier chapters.

Rich rigour

Rigour is demonstrated through a clear theoretical underpinning for the study and rich description of the processes of data collection and analysis. This chapter has provided detail on criteria relevant to the achievement of rigour through attention to detail, transparency in methodological processes and audit trails for decisions made. Dibley *et al.* (2020) suggest that an interpretative team can add to the rigour of a hermeneutic study at analysis stage through challenge of prejudices and pre-conceptions, however, also confirm that this is not compulsory. This was partly achieved however by the involvement of the doctoral supervisory team in the analysis stage.

Sincerity

Gadamerian phenomenology is dependent upon sincerity, demonstrated through maintenance of a researcher diary (Vaismoradi *et al.,* 2013). In line with Baillie (2014) the study included documentation of decision-making and thinking processes at each stage of the study and through the hermeneutic spiral (Figure 4.1), demonstrating openness required within Gadamerian hermeneutic phenomenology. The decision trail is also shown by keeping detailed documents on the development of codes and themes which reflected the researcher's prolonged and consistent engagement with the data (Cresswell, 2017). The balanced integration between the philosophical underpinning, the theoretical underpinning, and the co-creation of understanding further support the sincerity of the study.

Credibility

In qualitative data, credibility can be achieved through rich descriptions, crystallisation of data, use of a wide range of participants and engagement with reflection (Tracy and Hinrichs, 2017). These relate to the dependability and trustworthiness of the researcher, giving the reader confidence in the findings. Gadamerian hermeneutic phenomenology requires the researcher to openly acknowledge their pre-conceptions and thought processes through the process of interpretation which in turn support the claims made by the research. This is integral

to this research and evident in all chapters. Credibility through the study was further enhanced through researcher submersion in the data collection and spending extended time with participants (Krefting, 1991) enhancing rapport and encouraging participants to give honest answers rather than feeling they should give what they perceive are the desired answers. This creation of an open dialogue allowed participants to speak freely and probing to take place. Tracy and Hinrichs (2017) discuss the notion of multivocality in the credibility of research, evidenced by the researcher showing rather than telling, not putting words into people's mouths but being open to views of others, as evidenced in textbox 4.4. The use of verbatim quotes to support the findings and a clear audit trail (Appendix 13 and 14) in data analysis have also contributed to the credibility of the study.

Resonance

Tracy (2010, page 844) utilises the term 'aesthetic merit' in considering resonance in the trustworthiness of a study, considering that the text should be presented in a way that impacts on the reader, engaging them in the story. The use of Gadamerian phenomenology relates to the process of storytelling, a narration that captures the reader. This has been achieved using both text and diagrammatic representation of findings. The limitations of the study being single-centred are acknowledged in Chapter 7, however the hospital represented the characteristics of similar district general hospitals. Again, a full description of the sample and the setting is provided to enable the reader to consider application of the findings to their own setting with an aim of enhancing transferability (Baillie, 2014).

Significant contribution

The contribution that the study makes to current healthcare provision is discussed in the final chapter through the conclusion with clear recommendations for clinical practice. The study extends understanding, contributing to the existing evidence base through deeper understanding and insight into experiences and perceptions of RNs in using NEWS. As a result, the findings of this study will directly influence and affect future clinical practice, policy generation, pre and post registration education on patient deterioration and related topics as was illustrated in Chapters 1 and 2.

Meaningful coherence

Following the consideration of ethics (see section 4.8), the final step relates to soundness, consistency, and rationality of a study, which applies to the development

of a sound research proposal, starting with the literature review which establishes the context for the study. Tracy and Hinrichs (2017) suggest that meaningful coherence is established by each section of the study flowing in a logical way which appears coherent for the reader. Thorough processes of editing and feedback from a supervisory team have enhanced this step ensuring consistency throughout.

4.8 Ethics

The ethical context of the research was guided by several standards. WHO Ethical Guidelines stipulate that any research which involves human subjects is presumed to be subject to a Research Ethics Committee review (WHO, 2017). Similarly, the International Council of Nurses (ICN) Code of Ethics for nurses guided the process (ICN, 2012). The Health Research Authority confirmed approval. NHS Research Ethics Committee approval was not required (http://hra-decisiontools.org.uk/ethics/EngresultN1.html, 2017). Approval was obtained from London South Bank University School of Health and Social Care Research Ethics Committee, (Appendix 15) before submission for HRA approval (Appendix 16). A letter of access was gained from the NHS Trust host site and a research passport obtained (Appendix 17).

Most research comes with an element of risk which includes participants, organisations, and the public (Long and Johnson, 2007). In the interviews, participants discussed their experiences in relation to patient care. Gadamer (1975) reminds us that the objects of this study are human beings and so the hermeneutic researcher needs to be moral, open to what is being said and non-judgemental in our approach. Interviews concerned with lived experience come with a risk of psychological intrusion for the nurses, who may be reflecting on an emotional event for the first time. Prior to interview, it was explained to all participants that they may choose not to answer some questions and/or they may take a break if they wish or end the dialogue if it became emotive. An opportunity was made available for a debrief following the interview with the researcher, with an agreement that, if it were felt more appropriate or was preferred by the participant, one of the practice development team based on the site would make themselves available for a debriefing session. Throughout the interviews I was conscious of pauses in dialogue which may suggest the participant was uncomfortable, and through being open I believe this enhanced the participant's trust in me. Whilst one participant reflected on a highly emotive story where she had cried, this did not impact on her during the interview and there was no reason to stop the interview and she declined the

opportunity to debrief afterwards. Participants were assured that any comments from their interviews would be anonymized during transcription and the data stored securely. This would ensure that their comments were anonymized, and they would not be identifiable to anyone other than the interviewer. As an RN, I have a responsibility to protect the public (NMC, 2018). It was however made clear to participants in the participant information sheet that any discloser that was perceived as unprofessional practice or suggested potential risk of harm to patients would be reported to the research sponsor as the lead nurse, who would take the relevant action.

Written informed consent (Appendix 10) was obtained prior to interview. The researcher has a legal obligation as well as an ethical one to protect both anonymity and confidentiality throughout the study to ensure that the participant cannot be identified (Sanjari *et al.*, 2014). Collection of personal data was limited to demographic data (table 4.2) and email contact. Consent forms were the sole identifier on paper and stored in a locked cupboard in a secure room for the duration of the study. Once consent was achieved, each participant was given a code which was utilised throughout the research study.

Consideration of the researcher-participant relationship was highlighted as a limitation of a large proportion of the studies included within the literature review (Chapter 2). In application to this study, I was known to one of the participants who had attended classes delivered by me. It was acknowledged that the researcher may be known to some of the potential participants as a nurse academic, which may have resulted in a power imbalance. Jack (2008) discusses the role of the initial introduction influencing the participant's perception of the researcher but it also being influenced by the participants past experiences. Within this study, the participants received an introduction by email and via the PIS in the first instances clearly identifying my role as doctoral student, followed by an informal introduction at the start of the interview, in an approachable manner which was hoped would put the participant at ease to share their experiences.

4.9 Public and Patient Involvement

The focus of this study was upon the experiences and perceptions of RNs, rather than those of patients or carers. The implications of this study however relate directly to patient care and patient safety. The NHS Health Research Authority (2021)

advocate for investment in public involvement for research to drive higher quality and relevant research. Reflecting this, at the outset of the study, a service user with lived experience of acute physical deterioration helped design the research proposal and contributed to the process of ethical approval. Her lived experiences helped to shape many aspects of the research process including the research protocol but also the research question and recruitment strategy. Her input also challenged me to use appropriate language and apply a lay person perspective to my ethical application that I had not considered, a recognised challenge for early career researchers (Biggane *et al.,* 2019). Further input of the service user was not felt appropriate during the stages of data collection and analysis as this was not the focus of the study, recognising the role of Public and Patient Involvement (PPI) being specific to the nature of the research being undertaken (Gray-Burrows *et al.,* 2018).

PPI in research is acknowledged for its importance for future studies, in particular those that are aiming to explore experiences and perceptions of patients and service users. The NHS Health Research Authority (2022) suggest the application of four principles for meaningful involvement of the patients and public for research. These principles consider involving the right people; involving enough people; involving those people enough; and describing how it helps. These principles could be applied to future research alongside the six standards for public involvement in research (Partnership UPISD, 2019) to ensure effective and purposeful engagement that is relevant to the study.

4.10 Conclusion

This chapter has provided a thorough overview of the philosophical approach, methodology and a rationale for the methodological decisions underpinning this study. This has included a rich description of the sample and the recruitment processes for the data collection through to the use of interviews. Data analysis has been discussed in a step-by-step approach providing a narrative to the use of the hermeneutic spiral which underpins the Gadamerian approach to this study. Trustworthiness of the study has been explored and verified. Finally, the chapter details the ethical considerations for the study and the ethical approval obtained. The next two chapters will report on the findings of the study, the first (Chapter 5) focusing on the meaning of RNs using NEWS for clinical practice, the second (Chapter 6) sharing the meaning of using NEWS in the recognition and management of acute adult patient deterioration for nurses.

Chapter 5: Using NEWS: Understanding meaning for clinical practice and patient outcomes

5.1 Introduction

Following explanation and discussion of the steps of the Gadamerian approach to this study in the previous chapter, this chapter presents a discursive analysis of the study in relation to the meaning for clinical practice as a result of how Registered Nurses (RNs) use NEWS. These reflect the outcome of the processes highlighted in the Gadamerian spiral (Chapter 4, Figure 4.1). Through his writings describing his philosophical approach, Gadamer (1977, 2004) does not offer guidance on the presentation of the interpretative process, and hence researchers have developed their own approaches when utilising hermeneutic phenomenology methodology, as discussed in Chapter 4. In this chapter and Chapter 6, the interpretation of the participants' experiences is presented, with examples of the dialogue offered to support the hermeneutic understanding that emerged through engagement with the dialogue. These quotes serve to offer the reader a sense of authentication of the interpretation and an element of transparency to support the trustworthiness of the study. In line with the methodological approach the findings are presented alongside relevant published literature which has contributed to the interpretation thereby deepening understanding and informing the new horizon. It should be noted that the aim of the study is not to find answers to the deteriorating patient phenomenon but present an interpretation of the experiences of RNs.

The research question for this study was "What are Registered Nurses' experiences and perceptions of using NEWS in the U.K. as part of the recognition and management of acute adult patient deterioration?" NEWS was implemented to standardise and improve clinical practice, enabling early identification of deterioration (RCP, 2017). Validity of NEWS has been explored in other studies and was therefore not the purpose of this study.

The first two study objectives were to explore nurses' experiences and perceptions of using NEWS in the recognition and management of acute deterioration in adult patients and to identify what factors influence nurses' use of NEWS in the clinical area. Therefore, this chapter focuses on the story of how NEWS is used, identifying points of risk for patient safety and the implications for clinical practice. The third objective relates to the interaction between NEWS and clinical judgement and is

examined in depth in the following chapter (Chapter 6) which is focused upon the meaning for nurses and nursing.

5.2 Revealing the story underpinning the use of NEWS

Heidegger (1962) highlights that truth is revealed through the telling of participants' stories which may otherwise remain unhidden. The findings presented in this chapter tell the stories of the participants. From this point onwards in this thesis, the RNs who participated in this study will be referred to as narrators, rather than as participants, reflecting their role in the study as storytellers sharing accounts of their experiences and perceptions which underpin the emerging meaning of the use of NEWS. Through the application of the process explained in Chapter 4, as presented in the Gadamerian spiral (Chapter 4, Figure 4.1), the experiences of nurses and the factors that influence nurses' use of NEWS in the clinical area are revealed. Findings from this study present a concerning picture of potential risks to patient safety and missed opportunities to prevent patient deterioration. Through fusing individual stories with those from other RNs and through an iterative process of backwards and forwards from the whole to the parts (described in section 4.5) a new story emerged, the story of nurses using NEWS and what this means for clinical practice. This interpretation, through the creation of a story, reinforces the importance of holism in hermeneutics, recognising the ability of stories to enhance understanding and demonstrating how parts of the broader story are situated in the entirety of the circumstances. The story is underpinned by understanding through interpretation and application of multiple texts and reflects perceptions of both the researcher and the participant, thereby unveiling the new horizon of three individual synergistic weaknesses in how RNs use NEWS and the threat these weaknesses pose to the timely recognition of patient deterioration.

The first part of the story requires an appreciation of the roles of the nursing team, as actors within the story. Findings revealed three roles within the nursing team that operate within the afferent arm of NEWS: the HCA; the Junior RN; and the Senior RN. Their roles and responsibilities related to NEWS are identified in table 5.1. During the interpretative analysis it became apparent that there was a need to identify the length and type of nursing experience of the participants to gain greater understanding of their experiences and perceptions of using NEWS. Within this chapter, the terms 'Junior RN' and 'Senior RN' are used to assist the interpretation of the experiences and perceptions of the participants in application to the meaning for

clinical practice. The term 'Junior RN' is used for those participants with less than two years' experience since their NMC registration. A Senior RN reflects participants with two years or more experience since NMC registration. Details of participants are included in Table 4.3 in Chapter 4.

Table 5.1 Roles and responsibilities in NEWS

Role	**NHS Agenda for Change grade**	**Responsibility in NEWS**
Health Care assistant	2-4	• Undertaking vital signs • Escalating Vital signs to Jnr RNs
Junior RN (Jnr RN)	5	• Receipt of vital signs from HCA OR undertakes vital signs. • Calculates NEWS • Escalates concern to Senior RN based on NEWS and/or concern. • Calls CCOT based on response from Snr RN • Stands down from patient once help achieved and responsibility shifted
Senior RN (Snr RN) – Ward Based	6-8a	• Receives escalation from Jnr RN • Either takes over care of patient OR instructs Jnr RN to call CCOT • Undertakes systematic assessment of patient. • Self–manages patient OR escalates to the medical team

The second part of the story is the story line or 'plot'. Application of this new interpretation of the roles and responsibilities of the nursing team, as related to NEWS, enabled a new understanding of how RNs are using NEWS in clinical practice, represented by a flow chart (Figure 5.1).

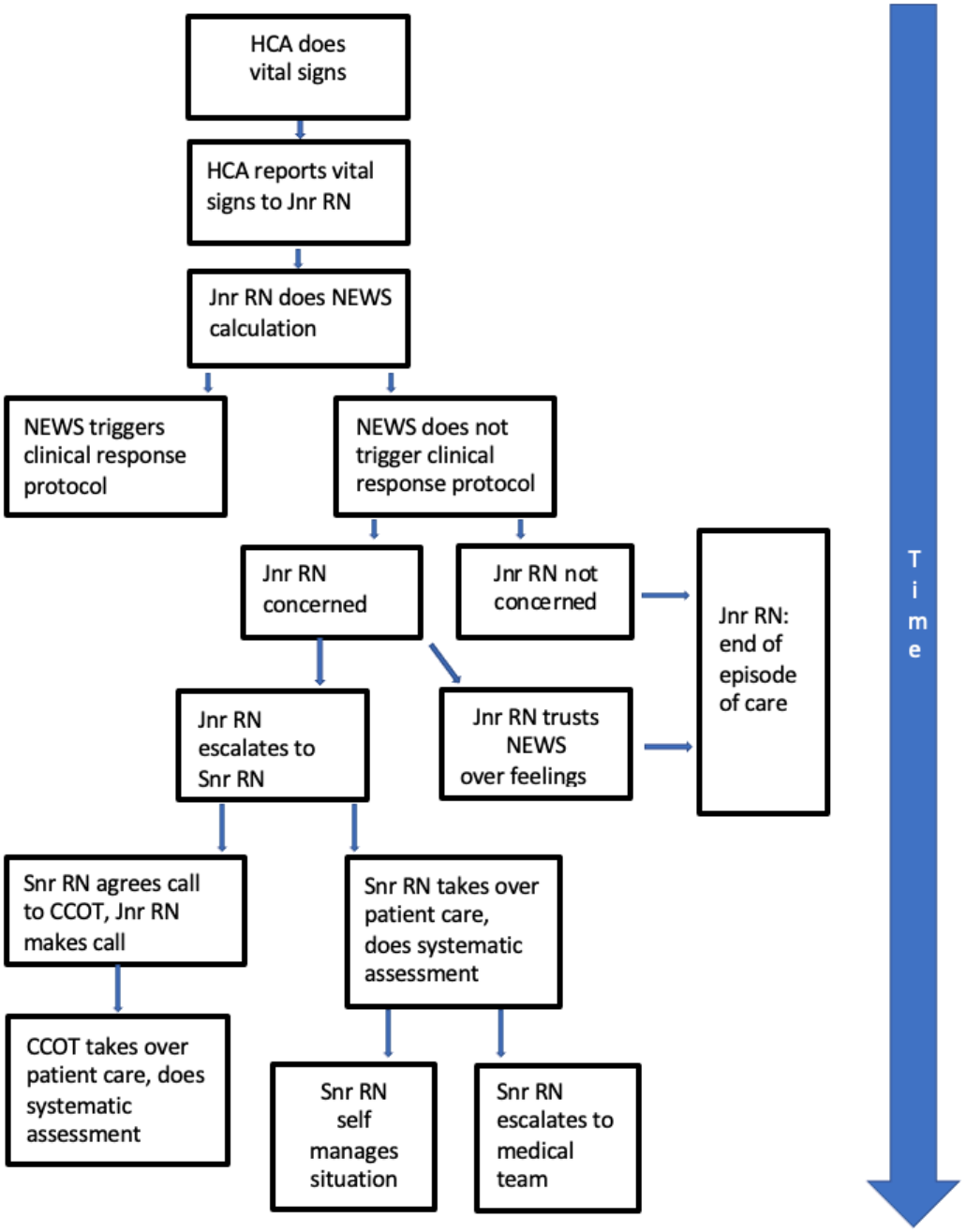


Figure 5.1 Process of using NEWS

Engagement with the text and the relationship with pre-understandings, underpinned by my experience and my immersion with the evidence base, revealed a story of the process of using NEWS based on interpretation of nurses' experiences and perceptions. Three points of risk were identified through the process discussed in the previous chapter (see 4.6.7) and shown in Figure 5.2. These risks are presented as pinch points, as three components of the story that reflect a turning point, an antagonistic force working against a goal (Weiland, 2020). The pinch points reveal points of potential patient safety failures where patients have potential to become exposed to the risk of their deterioration being missed or poorly managed which could ultimately result in a preventable death.

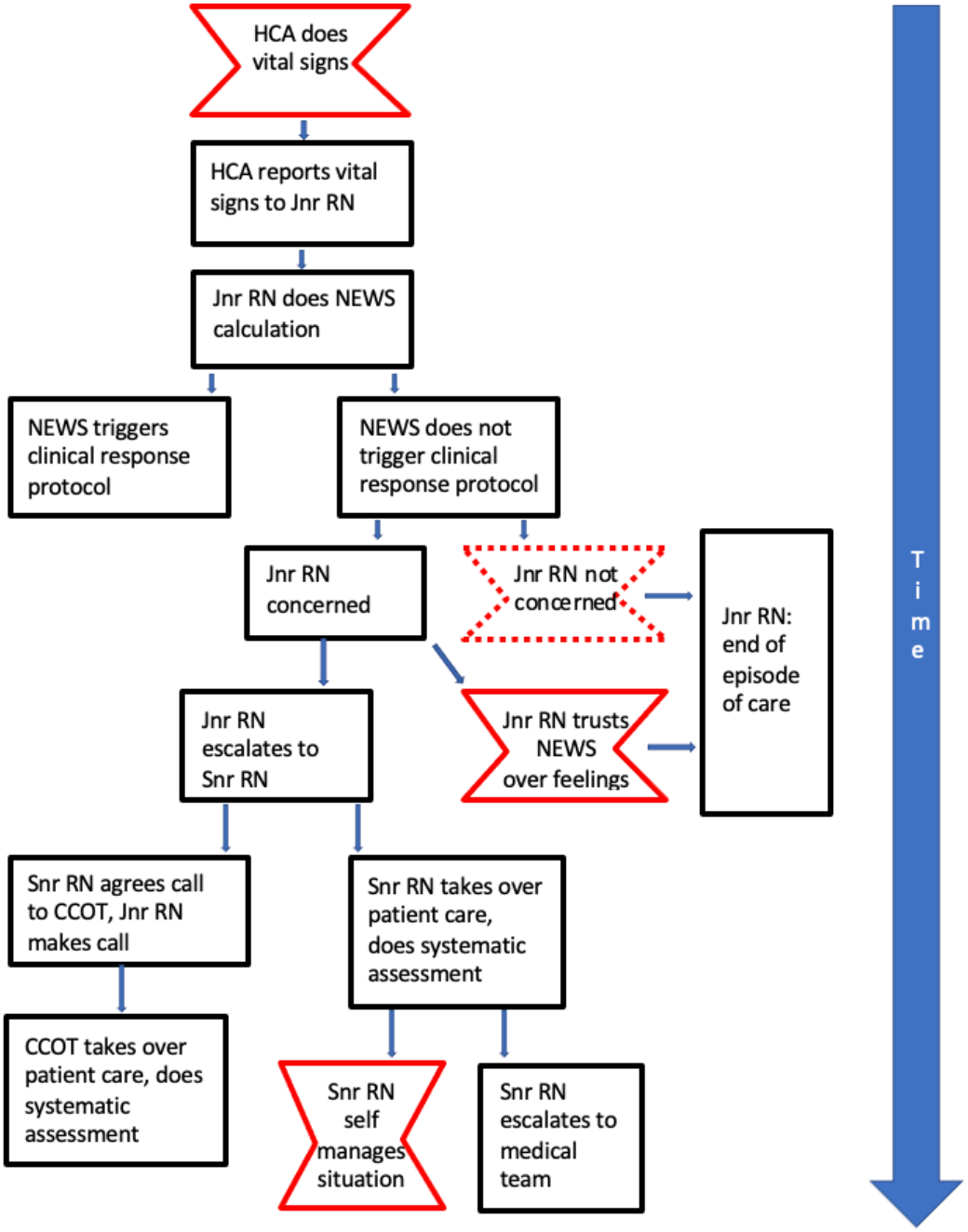


Figure 5.2 The pinch points of risk in NEWS

Figure 5.2 demonstrates three pinch points where risks have the potential to occur and lead to adverse patient safety events:

Pinch Point 1 – HCA does vital signs
Pinch Point 2 – The Junior RN trusts NEWS over feelings
Pinch Point 3 - The Senior RN self-manages the situation alone

In addition to these pinch points there is also an area of potential risk (identified as pinch point with a dotted line) in Figure 5.2 under Pinch Point 2, which relates to a negative trigger, where the Junior RN may not be concerned but possibly a Senior RN might have been. This will be discussed in Chapter 6 (section 6.4) in relation to the implications for nurses in the development of clinical judgement skills.

It should be noted that data collection took place over one year after NEWS2 was mandated across England. The implementation of and transition to the use of NEWS therefore featured highly through the dialogue, reflecting both the anticipatory and implementation experiences of participants. This understanding of the historical context around the use of NEWS is core to the principles of the Gadamerian hermeneutic approach as it helps to understand where the text originates and informs the interpretation and the understanding.

5.3 Pinch Point One: The HCA does vital signs

At the start of the process of doing NEWS, and at the lowest level of the nursing hierarchy, is the unregistered nursing workforce, usually referred to as Health Care Assistants (HCAs). In the UK, between 2014 and 2018 there was an 11% increase in non-registered support workers (Buchan *et al.,* 2020). The Cavendish review (2013) reported that HCAs comprise approximately 24% of the NHS healthcare workforce (n = 106,500). At the time of data collection, the new role of the Registered Nursing Associate (NMC, 2018c) was not yet implemented, however this is discussed later in this chapter (section 5.3.2) with regards to future implications for practice. Findings from this study highlight that it is commonplace for vital signs monitoring to be delegated to the unregistered nursing workforce, as seen across the NHS (Mackintosh *et al.,* 2014; Ede *et al.,* 2019; Smith *et al.,* 2021) making the host setting similar in this respect to other NHS Trusts in England.

5.3.1 This is what you should do …this gave something concrete

There was a clear early acceptance and recognition of the need for NEWS. Senior RNs had lived experience of the process of implementing NEWS. They had practised in a world before NEWS and demonstrated widespread agreement with the rationale for introducing the tool, perceiving that a change was required to ensure earlier identification of patient deterioration, in particular for their junior colleagues, including Junior RNs and HCAs. Senior RNs felt more confident following the introduction of NEWS in the actions of their junior colleagues as they had something on which to base their decision-making. NEWS offered guidance and support in decision-making processes. Senior RNs favoured the clarity of the tool and associated clinical response protocol highlighting the benefits of categorising patients and standardising actions required based on the score.

> *I think I initially thought, 'This is really good, because actually, it's very clear,' – it's crystal clear, isn't it, and it always was. Yeah, if they fall in this category or this category or this category, this is what you should do (N4)*

Senior RNs hoped NEWS would drive earlier identification of deterioration, attaching categories to patients which highlight those patients that may become acutely unwell in turn preventing the delays that lead to patients becoming critically ill. NEWS was seen to enable a proactive rather than reactive approach which had previously existed where nurses delayed taking action at the early stages of deterioration, instead waiting for a patient's condition to worsen as suggested by N6 below.

> *I thought it was going to help people to identify obviously patients who were deteriorated, that we picked that up sooner rather than leave them and leave them and leave them, and then they went into cardiac arrest, so it brought more emphasis on the peri-arrest situation, than on the cardiac arrest. So, that is what I was hoping it would do. (N6)*

Whilst not explicitly said, there was a sense that the narrators were concerned about the delays to identification of deterioration before the implementation of NEWS, highlighting the need for a change that would enable nurses to take action and make timely decisions. The emphasised reiteration in the words "*leave them and leave them and leave them*" suggests that healthcare workers had been significantly, and, from the narrator's tone of voice, inexcusably, delaying action until the patient reached a critical state, such as cardiac arrest. Narrators appeared, therefore, initially to have welcomed the introduction of NEWS as this would prescribe decisions and drive necessary actions which would benefit patients leading to better outcomes. In addition to highlighting deterioration earlier, one of the benefits that RNs saw in NEWS was the introduction of a 'common language' between healthcare professionals. Participants' perceptions were that there had been a lack of clarity about when to escalate prior to NEWS. Participants perceived that the tool offered heightened confidence in the process of escalation by placing weight on their escalation with all clinicians following the requirements associated with NEWS.

> *I think that provided a really good common language, sort of…Because I think so often, you hear nurses going, 'Oh, well I'm a bit worried,' (N4)*

The use of the term 'common language' indicated that language barriers had existed between clinical staff where escalation was concerned but NEWS offered some solution to resolve this. Gadamer (1975) argued that language underpinned all understanding on the basis that conversation and understanding involve coming to an agreement, further supporting the notion that without a common language understanding may not be achieved between the escalator and the escalatee. The concept of a common language is widely discussed in the NHS (whilst not in relation to the concept of common language proposed by Gadamer) in relation to patient safety (Health Education England, 2016a; Health Education England, 2016b) and cited as one of the drivers for the introduction of NEWS (Williams, 2022). This may be reflective of the use of a variety of EWS prior to the implementation of NEWS (Smith *et al.*, 2008), resulting in a lack of consistency around triggers for escalation. It might also reflect differences in communication styles and assertiveness between nurses and doctors (Prineas *et al.*, 2021).

Particular benefits resulting from the introduction of NEWS were perceived for the HCA workforce who, it was reported, undertook most of the vital sign monitoring yet received less training on vital sign interpretation. It was suggested that NEWS might help them to interpret the results of vital signs.

> *I think it was useful for everyone but particularly probably useful for the HCAs because they don't have that level of training to see where a trend is happening and where something is going the right or the wrong way (N7)*

The recognition and subsequent acceptance of the lack of training for the unregistered members of the team in how to interpret vital signs that they were undertaking is revealed here, with NEWS perceived to offer an alternative solution. This 'acceptance' and the fact that some narrators clearly did not want to hand over vital signs measurements to HCAs as a result of the uncertainty around their skills and knowledge is explored in Chapter 6 with regards to the implications for nurses (section 6.3.2). NEWS was viewed as a way of counterbalancing the lack of training for HCAs. Through its directive action, it was perceived that less reliance needed to be placed upon the ability of the HCA to interpret patient trends in vital signs to identify changes in the patient. The role of the HCA and the reliance on them by RNs, is recognised to have grown with questions over appropriateness and lack of training for the expansion of roles (Spilsbury and Meyer, 2004). The risks associated with this practice of delegation to the HCA in this pinch point are related to the existence of traditional practices ('doing the 'obs' round 'discussed in 5.3.2); concerns over compliance (Ansell *et al.,* 2015); competence (Smith *et al.,* 2021) honesty and trust (Chua *et al.,* 2019) appropriate delegation (Smith and Aitken, 2016; Chua *et al.,* 2019; Smith *et al.,* 2020; Smith *et al.,* 2021), and delays to escalation (Mackintosh *et al.*, 2014; Smith *et al*., 2020). The factors related to HCAs' use of NEWS have subsequent impact on RN's clinical judgement, further discussed in section 6.3.2 in relation to the meaning of for nurses.

RNs demonstrated an overall acceptance of NEWS and the underpinning rationale, highlighting their expectations of the new system. However, their experiences of its introduction were not all positive and lacked consistency in terms of education and training to support implementation. This confirms the importance of our history in the way that we interpret experiences as proposed by Gadamer (1980), reflecting that

whilst a group of people may experience the same phenomena, their interpretation and understanding of it influences their perceptions. Interpretations and understandings impact upon behaviours which are also shaped by organisational culture (Bijani *et al.,* 2019).

5.3.2 An unchanged culture of 'obs'

Dialogue with narrators highlighted an underlying culture of vital sign monitoring that had not changed following NEWS implementation. 'Doing the obs' referred to the traditional task of undertaking clinical observations or vital signs recording at set periods and times throughout the day (as also evidenced by Petersen *et al*., 2017 and Smith *et al.*, 2021) irrespective of the needs of the patient or the demands prescribed by the NEWS clinical response protocol. Delegation of recording of vital signs to HCAs was commonplace (Mackintosh *et al.,* 2014; Ede *et al.,* 2019; Smith *et al.,* 2021) and further supported the 'obs' culture with HCAs performing the task in an iterative manner. Once the 'obs round' was completed, the HCA reported findings to a RN who calculated the NEWS – reflecting a two-stage process that took longer than if it were undertaken by a single person. Rarely was the HCA responsible for both vital signs monitoring and score calculation. The reason for delegation was primarily related to RN workload.

> *50% of vital signs taking would be done by the HCA…. And, as a nurse you don't really have time to look at the vital signs, so that is one of those things. But yes band 5 really are swamped with so many things, that when you do your obs, because you are doing it at 10 o'clock and then afterwards your HCA will do it at 3, so you share the load of taking vital signs. (N8)*

> *In the morning I do it myself because I'm giving medication in the morning and I have to make sure that the night staff obs are correct before I give medication to my patients, so... And then in the afternoon usually it's my care assistant do it because I've got a lot of things to do in the afternoon. And what I usually do is I ask them to give it to me and I'll put it on rather than them doing it,*

because sometimes they don't... Well, sometimes they do forget there's an abnormality. (N10)

In the morning, both RNs reported opportunity to undertake vital signs themselves, alongside the administration of regular medication, which may suggest the importance of accurate vital signs for the RN for medication safety (Royal College of Nursing & Royal Pharmaceutical Society, 2019) or the routine Doctors' rounds which take place at these times. Larger peaks in vital sign monitoring compliance have been reported in both morning and evening (Hands *et al.,* 2013) suggestive of predetermined priority times for vital sign assessment. There is, however, in the narrators' lived experience, a clear lack of distrust in the vital signs measurement undertaken by the night staff and therefore the RN checks the patients as a baseline for starting their shift. This distrust did not appear to be linked to a particular role, such as the HCA role, but to the night staff overall. This may reflect the lower value placed on night work, which has been described as 'invisible' (Nilsson *et al.,* 2008) or may be a result of lower compliance to vital sign measurements at night which is frequently reported (Petersen *et al*., 2017; Eddahchouri *et al.,* 2021; Smith *et al.*, 2021).

The concerning aspect of the expressed lived experience is that the RN acknowledges that an HCA may not complete the task fully but continue to delegate on the basis that the RN could not undertake this task themselves due to a sense of business. However, this was accompanied by a sense of discomfort which was evident throughout the dialogue, with the RN delegating part of the task but not trusting the HCA to enter the results of the vital signs into the monitoring system, a practice required to fully complete the task. This reflects the concept of non-endurable busyness experienced by nurses as reported by Govasli and Solvoll (2020), whereby nurses may feel compromises to the quality of care they provide have been made and these become associated with both anxiety and stress. This appeared to be the reason for the HCA not adding the vital signs to NEWS as it offered the RN oversight that the vital signs had been taken and then a sense of safety-checking through the process of calculating the NEWS. This could however also reflect the fact that HCAs may not have access to the relevant systems for recording and therefore were reliant on ad-hoc reporting (Spilsbury and Meyer, 2004).

There was also an element of trust described in the process of delegation. RNs reflected on situations where they knew and trusted the HCA to undertake the vital signs without concern over the delegation. RN ambivalence regarding the shift of direct care undertaken by HCAs and the regret about RNs' reduced involvement with patients was highlighted by Bach *et al.'s* (2008) case study research which noted that the HCA role and degree of legitimacy attached to it differed across organisations. Equally this could be reflected across wards within an organisation, with some having greater clarity and integration of the role than others. Trust in the HCA was very important as was assurance that the HCA was competent in the skill of vital sign taking and would escalate concerns to RNs in a timely manner.

> *Some of our healthcare assistants are quite experienced so they know what to escalate. If blood pressure or heart rate is like this. And then if it's too high you just say, 'Just re-check it for now before you do anything'. (N14)*

Similar levels of trust were not considered present in relationships with temporary staff with RNs doubting the accuracy of the vital signs documented. This lack of trust appeared to lead to questions and doubt over undertaking and accuracy of vital signs. The impact of bank and agency staff on patient safety is largely unproven (Bae *et al.,* 2010) but trust is reported to be higher where there is familiarity, when staff are known to the ward team, compared to a lack of confidence in unknown agency staff, their competence and quality (Bajorek and Guest, 2019).

> *When a bank HCA works in the morning and then I come in at night and then a regular HCA that works on the ward comes in at night and counts the respiratory rate [and] it's really different from the previous one. So, we wonder if the previous one is really counting because the patient's already on oxygen, you know, and you can see from her that she has high respiratory rate. So, you wonder if the previous one really did it but I can't check. (N16)*

Delegation of vital signs to HCAs was not without concern and familiarity factored highly, an underlying concern expressed by many of the RNs with regards to practice issues. One issue raised by several narrators resulted from the practice of

‘obs rounds’ which were perceived to cause delays to escalation when RNs were not alerted to abnormalities until the end of the ‘obs round’ of up to ten patients. These RNs’ concern was that the delay may lead to a patient further deteriorating in the interim period.

> *They do all ten patients, and that can take them an hour, and by that point, you’ve had that patient NEWS score in for an hour, and then they report all of the patients Obs back to the nurse, all together. So I’ve had that as an issue. (N5)*

The practice of ‘obs rounds’ was perceived to impact on the effective use of NEWS and contributes significantly to the first risk associated with the use of NEWS represented in pinch point 1. The practice of ‘obs rounds’ is reflective of task-orientated approaches to patient care that were allegedly phased out in the 1970s in favour of more patient centred approaches (McEwen and Wills, 2014). NEWS requires the frequency of vital sign recording to be driven on an individual basis based upon either a red score in an individual parameter or an aggregate score above 5 (RCP, 2017). Despite NEWS offering this clarity, it was clear that within the host setting, a residual culture of recording vital signs at set times did not change with the introduction of NEWS, suggesting either a lack of understanding, a resistance to the change required as a result of the clinical response protocol, or a reflection of time constraints and workload. ‘Obs rounds’ have been frequently reported throughout the literature exploring EWS, reporting peak times for these to take place (Wheatley *et al.,* 2006; Odell, 2010; Hands *et al.,* 2013; Clifton *et al.,* 2015; Foley and Dowling, 2019) indicating a preference for this tradition over compliance with EWS clinical response protocol (De Meester *et al.,* 2012).

Without interviewing HCAs, there is little sense as to the rationale underpinning this more traditional approach to undertaking vital signs however other researchers have identified a sense of apathy to changing the culture of undertaking observations, attributing this to workload pressures, skill mix and staff shortages (Hogan, 2006; Odell, 2010; McGaughey *et al.,* 2017) which were frequently mentioned in dialogue with narrators in this study. This behaviour is likely driven by the notion that as human beings we are situated in history and historically conditioned and thus experience the world through our prejudices and the horizons in which they subsist

(Gadamer, 2006). The culture of obs rounds is therefore reflective of the immersion of the HCAs and RNs in this deeply rooted traditional practice.

Dall'Ora *et al.* (2021) reported substantial efficiency gains from monitoring vital signs as part of a round applicable to all grades of staff which may offer a rationale for this practice. The evidence from both this study and existing literature suggests the prioritisation of efficiency of this task over the patient-centred approach. This traditional way of recording vital signs may also reflect the apparent low value attributed to the task itself (Higgins *et al.,* 2008; Kellett and Sebat, 2017) with delegation to junior or unregistered staff as a result. Such apathy may also be attributed to the perceived lesser importance of vital signs measurement (Higgins *et al.,* 2008) reported as dirty work (Mackintosh *et al.,* 2014) and hence delegation to HCAs, sometimes without assurance of their competence to undertake the task. This culture and practice may represent a missed opportunity to detect clinical deterioration with potential serious outcomes for the patient.

> *The HCA took it, and the nurse is not aware so it was picked up a bit late by the doctors who were doing their rounds, so that kind of stuff normally happens, it is a common occurrence. (N8)*

Delays in escalation reported in this study, supported by existing evidence (Mackintosh *et al.,* 2014; Ede *et al.,* 2019; Smith *et al.,* 2021), suggest that HCAs are failing to bring abnormalities to the attention of the RN. As a result of this 'failure to notice' by the HCA, the RN remains unaware of the potential deterioration. It is unclear if RNs have an expectation for the HCA to undertake interpretation and without clear role boundaries for the HCA workforce this is subject to interpretation. The HCA may therefore not appreciate the characteristics of the clinical situation, significance of vital sign monitoring or have the critical thinking skills required to interpret the findings. HCAs may lack the knowledge of the importance of the task delegated to them and the need to feedback. Reflecting on this reveals a need to explore this further with the HCA workforce to understand the perceptions and priorities of the whole workforce. RNs also reported concerns that HCAs did vital signs without considering the implications or undertaking any level of interpretation, suggesting that the HCAs did not have the skills required. It may, however, also be suggestive of the HCA not being asked to interpret the results or communicate them

back to the RN, just to plot the numbers on the chart or whatever medium was utilised.

Sometimes they were just plotting the numbers and not really looking at it, what was happening. (N7)

In discussing experiences where the HCA did record the vital signs directly onto the computer, one narrator perceived that this further complicated the situation. Through the automation of the processes the HCA appeared to have no need to report back the vital signs verbally to the RN but only to submit the recordings and complete the task. This situation was then dependent upon the RN to make a point of checking the computer entry to ensure the vital signs recording was within normal limits.

Because they do the observations, but some, maybe because they're new so they don't know when to escalate. Because some people will – because it's automatic, the machine, which scans the code and stuff, so it goes straight to the computer. So you'll just notice that they've got high heart rate or tachycardia when it's on the computer already. And then you're going to say, 'Oh, why didn't you tell me about this?' (N14)

The RN has a duty to ensure the HCA knows to report in a timely manner (Nursing and Midwifery Council, 2018), however RNs in this study reported a delay in receiving a report on the patient's vital signs. Delays in escalation from the HCA to the RN were also reported by Smith *et al.* (2020) and Mackintosh *et al.* (2014) with similar circumstances including documenting vital signs firstly on paper and then entering them into the electronic system later to calculate NEWS. Waiting to escalate increases the risk of delayed recognition of deterioration and application of the NEWS clinical response protocol, subsequent escalation to a senior member of the team and the relevant action to manage patient deterioration.

Despite the allocation of vital signs recording to HCAs, narrators seemed unaware of the competence or preparation for NEWS that HCAs had experienced. As a result, there was uncertainty as to whether the HCAs understood the requirements of the task fully. Despite this, the delegation still took place. RNs appeared to be

escalating to HCAs without confirmation of competence. The meaning of this to nurses is further discussed in Chapter 6.

> *There definitely needs to be more training around what the normal observations are. I think it would be helpful if we had like a card or something on the ward because there isn't... To be honest, I can understand if the healthcare assistant doesn't know because they're not really expected to but they need to know when to escalate something. (N15)*

On reflection of the concerns highlighted by this ongoing delegation without assurance of competence and subsequent delays to escalation, I reported this to the practice development team as agreed in the Participant Information Sheet (PIS) (Appendix 8) and as required by the NMC (2018). The action agreed was that this would be raised as a patient safety issue and escalated accordingly. Delegation to a member of the team who does not necessarily understand the importance and implications increases risk of abnormal vital signs not being appropriately addressed and therefore the chance of a deteriorating patient going unnoticed. Similar findings were reported by Smith *et al.* (2021) who undertook an in-depth study of the afferent limb of the rapid response system which included both RNs and HCAs. HCAs in Smith *et al.'s* (2021) study reported a belief that they had a key role in recognising and preventing deterioration based on their frequent contact with patients. However, HCAs in Smith *et al.'s* study (2021) also reported mixed beliefs around the escalation of subtle signs of deterioration to RNs citing that whilst some RNs are helpful and receptive others are dismissive, possibly leading to decisions being made by the HCA to normalise the abnormal and not act. This practice around delegation is further discussed with regards to the meaning for nurses in Chapter 6.

Education and training of HCAs remains unregulated in the U.K. (Sarre *et al*., 2018); there is no benchmark or national competence for HCAs with regards to vital sign monitoring. Whilst development of the U.K. Care Certificate (Cavendish, 2013) offers a nationally recognised competence-based certificate, vital signs monitoring is not included. Although more formal qualifications such as National Vocational Qualifications (NVQ) and Qualification and Credit Framework (QCF) exist for the HCA workforce offering assessment against national standards, there is a lack of funding available (Lewis and Kelly, 2015). The focus of HCA education and training

may have recently been superseded by the introduction of Nursing Associate (NA) roles in the U.K. The role is NMC-regulated and subject to NMC standards of proficiency for Registered NAs (2018c, 2018d) with NAs accountable for their own professional conduct and practice. The standards for proficiency for RNs regarding deteriorating patients differ from the standards for Nursing Associate. The Standards for RNs (NMC, 2018b) require RNs to demonstrate the knowledge and ability to respond proactively and promptly to signs of deterioration and use this to make sound clinical decisions. The NMC Standards of Proficiency for NAs however (2018d) refer to use of manual techniques and devices to take, record and interpret vital signs including temperature, pulse, respiration (TPR), blood pressure (BP) and pulse oximetry in order to identify signs of improvement, deterioration or concern (NMC, 2018d, p23). The standards do not however ensure that the NA knows that they are expected to respond to unexpected changes by bringing them to the urgent attention of the RN.

The NA role has not been implemented to replace the role of the HCA, but to bridge the gap between the unregulated care assistant workforce and the registered nursing workforce (HEE, 2015). Therefore, it does not offer a solution to the education and training standards of the HCA workforce in particular reference to vital sign measurement. A survey, undertaken between 2014-2015, on the HCA workforce in acute NHS Trusts in England reported that, in over half of those Trusts, induction training lasted for less than a week (Arthur *et al.,* 2017) with another evaluation reporting limited take up of in-house training (Kessler, 2015). This length of training for an HCA compared to the NA programme which lasts for two years highlights a potential area of improvement with regards to the development of skills for vital signs monitoring and recognition of deterioration.

Another practice issue highlighted was recording of the Respiratory Rate (RR). RR was raised as an ongoing frustration that existed prior to the introduction of NEWS. Narrators perceived that this vital sign was neglected citing incompliance, poor accuracy, and questions over the honesty of healthcare professionals actually taking the measurement suggesting that people frequently falsified the RR. This was not just in relation to HCAs but the wider workforce.

> *People, they don't count respiratory rate… They don't, it is just … you can see the patient catching his breath when you look at obs,*

RR is 20. I don't know how to get away with that , how do we make people count? Yes, because if you have the obs machine, it will automatically – in five seconds, you will get the bp, you will get the heart rate, but it will take one minute of your time to get the RR, and I am busy! I am not going to get, I will just say okay 18, he is not distressed. So, I think laziness, yes. Culture. (N8)

RNs were aware that people falsify the RR and whilst it appeared to cause angst narrators indicated that there was little action taken to address it. At this stage, I experienced shock as a nurse researcher and educator that this practice was ongoing and accepted without action being taken, despite it having potential patient safety implications and both ethical and moral implications for the RNs. I reported this poor practice to the practice development team, as stated in the PIS and as required by both the NMC Code (2018) and researcher code of ethics. The action agreed was that this would be raised as a patient safety issue and escalated accordingly. Once this action was taken, I reflected on this shock. Poor practice in RR measurement is widely recognised, but personally I had not experienced this for many years in my education role, so the reality of the situation was extremely disquieting for me. With such a focus on patient safety and transparency in NHS culture, I assumed that this practice was now a thing of the past. I was more shocked that RNs in the study accepted this poor practice and discussed it openly. I was not expecting or prepared for it. To enable processing of my thoughts, I undertook a debriefing with a nurse academic colleague engaged in the field of deterioration and this formed an entry in my researcher diary, becoming a part of the study and my thoughts moving forward.

And, I say to them, who checks the respiratory rate and they laugh at me! They don't do, I know they don't do it! So, I will say okay so what are you then, you are a 16 ward, or you are an 18 ward? Because they are not doing it! (N6)

The lack of appreciation for the importance of respiratory rate highlighted by many Senior RNs in this study is mirrored by other studies (Van Leuvan *et al.,* 2008; Chua *et al.,* 2013; Mok *et al.,* 2015; Smith *et al.,* 2020). This finding is not just related to the HCA workforce but the wider nursing team and is reported as far back as 2006

(Hogan, 2006). Disregard for respiratory rate is a common occurrence (Cretikos *et al.*, 2008; Parkes, 2011; De Meester *et al.,* 2012; Ludikhuize *et al.,* 2012; Stafseth *et al.,* 2016) with reports of poor practice in recording (Lim *et al.,* 2002; Lovett *et al.,* 2005; Chen *et al.,* 2009) and falsification of respiratory rate using a cluster of results between 18-20 per minute (Lovett *et al.,* 2005; Granholm *et al.,* 2016; Badawy *et al.,* 2017). The dialogue with RNs in this study revealed a legally and professionally unacceptable unquestioning acceptance of this poor practice, which evidence shows has been prevalent for many years within nursing with little challenge (Foley and Dowling, 2019). RNs have both a duty of care and a legal liability with regards to the patient for delegated activities (Royal College of Nursing, 2017). Hence, delegation knowing that the HCA may not have the skills or competence to undertake the task has significant implications for registered nurses.

Existing nursing teams may require re-educating about respiratory rate being the most sensitive marker of deterioration (NICE, 2016) and early predictor of mortality, critical care admission and cardiac arrest (Kellett and Sebat, 2017). Since the COVID-19 pandemic, nurses may have an increased awareness of respiratory rate, however there is no reported evidence of that to date. Conversely, with COVID-19 research confirming the presence of silent hypoxia (section 1.4) with an associated lack of expected increased RR in response to a lower oxygen saturation, nurses may have less tendency to undertake RR. New *Future Nurse* standards (Annex B), introduced by the NMC for pre-registration nursing programmes and nursing associates in 2018, increased elements of respiratory assessment, which would support the importance of respiratory assessment in newly qualified nurses for the future (NMC, 2018b). Considine *at al.* (2015) suggest that monitoring of RR could be improved through educational intervention and by support from Rapid Response Teams (RRTs) (McBride *et al.,* 2005; Chen *et al.,* 2009). The findings of this study however suggest that education alone may be ineffectual (see section 5.4.2) as despite educators placing emphasis on RR, poor practice continues in clinical practice. Instead, role modelling using a lead-by-example approach may improve perceptions of the value of vital signs and create the necessary culture shift and is advocated by Kellet and Sebat (2017).

The model of delegation of vital signs to HCAs reported in this study is commonplace (Wheatley, 2006; James *et al.,* 2010; Smith *et al.,* 2020). It does bring into question the value placed on this task when it is perceived as a role suitable for delegation to unregistered members of the workforce (who have limited and

unstandardised training for their role) and is stigmatised as menial work (Loftus and Smith, 2018). The persistence of hierarchies in healthcare is acknowledged both in this study and others (Smith and Aitken, 2016) resulting in power imbalances (Roberts *et al.* 2009) linked to poor communication and teamwork. This is recognised to impact adversely on patient safety outcomes as demonstrated in major reviews into NHS hospital failures such as Mid Staffordshire (Francis, 2013) and Gosport (Darbyshire and Thompson, 2018). The Cavendish review (2013), undertaken in the wake of the Francis report (Francis, 2013) recognised the blurring of boundaries between RNs and HCAs, suggesting that the lack of clarity in job descriptions and competency led to uncertainty about what tasks can be delegated. Blurred boundaries of HCA roles are not new but discussed throughout the literature (Gillen and Graffin, 2010) with barriers cited including lack of experience and competence, confusion over responsibility and accountability. Rodger *et al.* (2019) presents a view that HCAs experience a sense of powerlessness as a consequence of their lack of involvement in decision-making about patients. As a result, the HCA may not feel engaged or motivated in the monitoring of vital signs to develop their competence or work more collaboratively with higher levels of the nursing hierarchy.

Hierarchies are frequently cited in the literature regarding patient safety with steep hierarchical gradients linked to damaging behaviours and having damaging effects on team relationships (Brennan and Davidson, 2019). The notion of flattened hierarchies, involving the removal of middle management structures, has been suggested to improve communication and teamwork (Green *et al*., 2017) in healthcare. Whilst these are not commonplace in the U.K. there are some examples, including Magnet hospitals and U.K. military hospitals. Magnet hospitals, which are certified by the American Nurses' Credentialing Centre (ANCC) are institutions where nurses are empowered to make decisions because of a relatively flat nursing hierarchy with evidence of improved patient safety and satisfaction (Flynn, 2007). These results are associated with a positive organisation culture where staff are empowered to raise patient safety concerns, with concerns around delegation being supported when there is less hierarchy (Lasater *et al*., 2019). To date, only one hospital in the U.K. has gained Magnet status despite other hospitals pursuing this status (Stephenson, 2021). The impetus for NHS hospitals seeking Magnet accreditation is not clear however it may not be driven by improvements in patient safety through a flattened hierarchy but fuelled by the nursing recruitment and retention crisis (Jones, 2017) with Magnet hospitals reporting improvement in their recruitment and retention (Graystone, 2019). Lack of success for Magnet

accreditation in the U.K. may suggest that the application of the underlying principles do not translate to a publicly funded health-service; that does not, however, mean that a flattened hierarchy would not be appropriate in the NHS.

Flattened hierarchies were also realised at the NHS Nightingale hospitals, created in response to the COVID-19 pandemic as a result of the lack of clinical expertise to support traditional hierarchies in healthcare (Bushell *et al.,* 2020). The flattened hierarchy made allowances for delegating both downwards and upwards, with inclusion of a wide staff mix at daily meetings. Whilst Nightingale hospitals received only small numbers of patients, lessons learnt support that transparency in decision-making, systems of rapid delegated authority, rapid in situ audit encouraged staff autonomy and continuous quality improvement (Collins *et al.,* 2021). Flattened hierarchy may not be the panacea, according to Ede *et al.,* (2021) who reported problems in relation to the deteriorating patient, with Senior RNs confident about escalating care and most nurses favouring escalation to a higher level, implying hierarchical influences prevail in the acute hospital setting.

In summary, despite the high expectations that a mandated standardised system would improve the detection of patient deterioration, a continued culture of 'doing the obs', frequently delegated to HCAs, threatened to undermine the anticipated benefits. The meaning for nurses and nursing of the factors associated with this pinch point are explored in Chapter 6.

5.4 Pinch Point Two: The Junior RN trusts NEWS over feelings

Recognition of change and clinical judgement in circumstances where the patient is deteriorating is a complex task and one that requires rapid action (Smith *et al.,* 2020). Effective decision-making is dependent upon clinical judgement (Tanner, 2006) with the nurse interpreting signs and symptoms of deterioration and responding appropriately. As discussed in Chapter 3, the development of clinical judgement skills is relative to experience of the nurse, and this is evident in the findings of this study. A novice nurse is more likely to favour rules, opposite to the expert nurse who makes intuitive decisions based upon experience (Dreyfus and Dreyfus, 1980; Benner, 2011). Concerningly, the data in this study suggest that Junior RNs may rely solely on NEWS, ignoring any concerns they may have about the patient. Consequently, if NEWS is not specifying deterioration, it may go either

unnoticed or ignored. This presents the second pinch point within the story of using NEWS and is discussed further in this section. This pinch point offers new understanding of both the factors that influence the use of NEWS and the interaction between NEWS and clinical judgement. This pinch point is further discussed in relation to the meaning for nurses in the next chapter where the use of clinical judgement is discussed through application of Tanner's model of clinical judgement (Tanner, 2006).

5.4.1 Do what the NEWS scoring 'said to' do

Whilst issues were discussed regarding lack of compliance with regards to respirations, NEWS, as a whole, was discussed with an element of selective compliance, particularly for the less-experienced junior RN cohort. Junior RNs reflected a sense of concern in meeting the expectations of the senior colleagues in ensuring that they do NEWS and then take the actions that the clinical response protocol directs them to, prior to escalating.

> *So, if I can see that the patient is deteriorating or really he's not well then I do what the NEWS scoring said to do. Then I escalate to the doctors and nurses in charge as well, so they will know and yes…and if the patient is not that, he's scoring but is not presenting symptoms, then maybe we can just observe him but not that frequent. (N1)*

Narrators utilised normative language that characterised rule-following behaviour such as 'must do', 'have to', 'should do' when reflecting on how they used the NEWS tool in clinical practice. These modal verbs denoted an obligation to do something or take action, based on a set of rules or permissions. Following those rules was viewed with high importance by Junior RNs and was most evident in the overseas nurses who sought permission and approval from their senior peers. This may reflect the notion that the Junior RN is worried about approaching their senior colleagues without completing all of the steps required in the task and ensuring they meet the expectations of recording NEWS and hence demonstrate compliance. Junior RNs were very descriptive in terms of their reflection on their lived experiences that involved identification of a deteriorating patient. Steps they described did not involve

any elements of critical thinking but focused on completing the tool, and resultant actions defined by the tool.

> *It's continuously monitoring, and you should tell the doctor that that patient should be assessed and then if they will transfer to ITU then quickly tell the doctor the NEWS is 7 and your nurse manager also. So there will be a team that will assess the patient so it will not be deteriorating rapidly so we can provide treatment to the patient so the patient will not deteriorate faster.(N11)*

One explanation offered for rule-following behaviour was concern over potential reprimand from senior colleagues if rules were not followed, however this did not appear to be recognised as an issue. A Junior RN, whilst reporting that they felt supported to escalate, was also worried about the repercussions of not following the rules if a patient triggered but the patient's clinical condition was not indicative of a need for concern. This fear was underpinned by negative feedback reaching their managers. Another explanation for this is reflected in the development of confidence with experience in nursing, explained by this behaviour being limited to the Junior RNs. One strategy described to avoid this was to document actions taken to 'back myself up' as a source for further evidence of compliance with the tool and the clinical response requirements.

> *I keep thinking that I'll get in trouble if I don't do it, because I think they [Outreach] feedback it as well, to our manager and stuff, so… because normally if they've got like low blood pressure or the parameters are not within ranges, I'll put add comments or flag with comments that you'll say, 'Given water for low blood pressure, elevated legs, asymptomatic and then escalated to the doctor'. Just to back myself up. (N14)*

This sense of backing yourself up may be reflective of the organisational culture and focus on compliance measures, which include regular audits of NEWS and documentation in a culture where inspections are commonplace. Documentation of actions appeared to hold as much importance as the actions taken with the patients

evidenced by the reference to ‘adding comments’ for other more senior members of the multi-professional team to read.

> *And that’s the sort of thing that slightly drives me a bit crazy. And I think sometimes…I think we have become, as a profession, quite tied up with filling the forms and ticking all the boxes, without then thinking, ‘Well, why am I doing this? Why am I…?’ ...But it’s the same kind of principle that, you know, sometimes I feel like we are very… ‘I don’t know, NEWS told me to do that, it says on the back of the chart, so that’s what I’ve got to do.’ (N4)*

Senior RNs expressed frustration and concern about an over-compliant mentality that changed the behaviour of nurses, so they were no longer thinking about what they were doing and their reason for doing it; instead, were following a prescriptive algorithm. One senior RN suggested that following rules negated the need for making decisions and therefore as a newly qualified nurse rule-following may be the easiest option. Newly qualified nurses indicated that they wanted to fit in, to be part of the team which may further enforce rule following behaviours as it may be what they feel is expected of them. Decision-making for these newly qualified nurses may be guided by what feels right, rather than decisions that make logical sense, again mirroring rule following behaviour.

> *No, because you’re just, you’re following, it’s just a different, whether it’s a verbal instruction or a written instruction, you’re still following an instruction, therefore you’re not really making decisions... so I can understand why, as a newly qualified nurse. Why would you go against the rules? (N5)*

Senior RN narrators appeared to recognise this behaviour and the opportunity to reflect on their own lived experiences of being a newly qualified nurse. A sense of empathy and understanding for the less experienced Junior RNs came across which reflected their support for the development of confidence and skills in their colleagues.

So, I also escalated everything when I started, so that's why I can understand newly qualified staff if they're escalating everything because I used to be like that too. It's not like I came here like I'm already an expert, so it's like I see myself in them when I started, so I'm always happy to help or to give my clinical judgement to them. (N13)

Findings suggest NEWS is viewed as a task which is mandated, monitored through audits and actions prescribed by the NEWS clinical response protocol. Concerns were highlighted with the perception that some Junior nurses took an un-questioning approach to NEWS, following its clinical response protocol strictly. This prescriptive behaviour may be driven by various factors including organisational culture, workload, situational awareness, experience, confidence and education. Interestingly, Heidegger, in 1966, warned of a way of thinking and acting that is overtaken by protocol-driven environments where people fail to think, suggesting that while both measurement and calculation are essential, they can also remove an awareness of experience and have a de-skilling effect. Whilst not intended as a prediction, this suggestion applies well to this theme.

A culture of compliance was evident in the clinical areas represented in this study, with ward level managers undertaking NEWS audits as a behavioural determinant to shape nurses' practice to ensure safe patient care. This placed significant weight on completion of NEWS within a given timeframe driving compliance as a priority above holistic patient assessment.

Because our NEWS audit has been like a hundred percent, for a long time… so you pick ten patients, at random, and then you look at how many complete set of obs, how many sets of obs they had done in the last 24 hours, of which of those were they complete, and generated a new score. If their new score was above three and one or five as a total, was it escalated, and who was it escalated to, and did they come to you within an hour? So that's essentially the audit. As I said, I think it just misses this massive gap of patients...(N5)

Audits of NEWS were not highly valued by nurses in this study and other evidence (McGaughey *et al.,* 2017) suggests that observation charts are purposively selected for NEWS audits in order to avoid further workload for senior nurses to address issues with non-compliance. Regular audits undertaken on the same day of each month may also be subject to the Hawthorne effect (Al-Yateem, 2012) with nurses taking greater care to comply with the protocol on that day for fear of repercussion. The literature around patient safety makes frequent reference to the use of audits as a quality measurement tool, but exploration of perceptions of healthcare professionals around audit suggest it lacks value and diminishes clinical ownership which suggests to the healthcare professional that they are not trusted to exercise sound clinical judgement. This in turn creates hierarchical suspicions and most importantly is seen to create a culture of blame (Johnston *et al.,* 2000). Irrespective of nurse perceptions, audit is used as a tool to measure compliance with NEWS across the NHS (NHS England, 2022a).

Whilst this may demonstrate the correct use of NEWS it does not guarantee that the task is well executed in the wider picture of recognising deterioration (Levy *et al.,* 2012). What it does however suggest is that through implementation of compliance measures there is an impact on nurses' freedom of autonomy to prevent harm. This resonates with the thinking of O'Neill (2002) that medical practice has moved away from paternalistic traditions where healthcare professionals were the best judges of patient's best interests based upon an underpinning trust. This practice is now over-shadowed by the explicit standards of healthcare which are regulated and compliance monitored. As a result of these compliance measures, usually in response to a patient safety failure, an organisational culture of compliance is adopted, becoming more dominant with organisations adopting assumed norms (Milbourne and Cushman, 2015). As a result, professional autonomy becomes heavily restricted because a lack of trust has arisen towards professionals and organisational focus shifts to the use of rules, guidelines and checklists with behaviours adapting accordingly.

As highlighted in Chapter 4, eight of the sixteen narrators were overseas-trained nurses. Not all were new to nursing but new to the U.K. health system. These nurses appeared to take an unquestioning approach to the culture and organisation of the NHS and performing expected tasks. With overseas-trained nurses making up 44% of new people joining the U.K. nursing register in 2021 (Palmer *et al.,* 2021) the U.K. has a heavy reliance on these nurses to make up the nursing shortfall. It is important

to consider the impact of this on the use of NEWS and the cultural implications. The responsibilities of a new role as an overseas-trained or newly qualified nurse can be overwhelming (Whitehead *et al.,* 2013), and, combined with the fast pace and high acuity of patients, allows little time to consolidate (Clark and Holmes, 2007) and build skills, confidence, and competence (Nour and Williams, 2019). Nursing practices overseas vary, as do the cultures around healthcare. For example, Filipino culture is described as keeping quiet and being extremely hard working with a reluctance to question (RCNI, 2020), therefore Filipino culture may inhibit nurses from speaking up, raising their concerns about a patient or patient safety practices. The past five years have seen a decrease in the number of overseas nurses coming from Europe as a result of Brexit and the Covid-19 pandemic, but the supply of nurses from both India and the Philippines remains at similarly high levels (Evans, 2022). This, alongside a new and significant national drive (supported financially by the government), will see an influx of more internationally-trained nurses with further implications for clinical practice (NHS England, 2022b). The meaning of this for both overseas nurses and U.K. trained nurses is explored further in section 6.2.2.

For Junior RNs trained in the U.K., NEWS was taught in their pre-registration nursing programme and was therefore familiar. The way that Junior RNs used NEWS reflected an approach resembling prescriptive decision-making (as discussed in Chapter 3), using a formulaic approach that Benner (2004) suggests novices take in absence of experience. This may be related to the way in which NEWS was taught to them in their pre-registration nursing programme as a skill rather than using it to support a holistic assessment of a patient. Their pre-understanding of NEWS is therefore derived from their historical experiences (Gadamer, 1977) and underpins the way in which they use NEWS. Most Junior RNs in the study identified examples of where NEWS did not trigger any action, yet the patient was deteriorating or deteriorated shortly afterwards. The stress and pressure of this situation may drive the Junior RN to focus on rules-based performance which is both automatic and conscious (Ramussen, 1986). NEWS offers familiarity and control in a situation where a Junior RN does not have the skills or expertise to approach the situation differently and challenge the NEWS score. Reliance on NEWS in this situation may have prevented the Junior RN from making the most appropriate decision which may involve acting against the advice of the NEWS clinical response protocol. Whilst this action to follow the prescriptive actions of NEWS may be impacted by a sense of being overwhelmed (Halpin *et al.,* 2017), it may also be because of a lack of

situational awareness (Purling and King, 2012; Panesar *et al.,* 2012; Brady *et al.,* 2014; Aoki *et al.,* 2019).

5.4.2 The NEWS score is fine but then the patient has become unwell.

Narrators described experiences of false negatives when using NEWS. This is when NEWS does not trigger the clinical response protocol, but the nurse believes that the patient is unwell for a variety of reasons. For inexperienced Junior RNs, who held less confidence and self-belief in their skills, this led to an internal conflict as to whether they should follow the clinical response protocol or their instinct. This was most relevant for a patient who deteriorates quickly and has significant implications for clinical practice.

> *Yes, um, it has happened to me maybe twice. When I checked the NEWS score everything is fine, then I went to another patient to give the medicine and after I had given the medicine, I noticed that he is blushing. I checked the Obs again and they seemed fine, their NEWS score if fine, I think they were just 1 or 2 but because he is COPD, but then after an hour he became unwell. It just happens the NEWS score is fine but then the patient has become unwell. Then the NEWS score goes up. (N2)*

If NEWS did not trigger but the nurse was concerned about a patient, narrators described processes of questioning themselves and their plans to escalate, which may reflect a fear of needing to provide deeper justifications when they struggled to justify and contextualise their worry. Junior RNs explained how, the lack of triggering NEWS combined with a lack of confidence in their own clinical judgement skills meant that they would not necessarily follow their instinct and seek help. Gadamer (2006) discusses the need for us to sense what is feasible, possible and correct in the here and now, to be aware of the tension between what is trying to be achieved and the reality of which it is situated. Applying this philosophical approach to the situation highlights the tension RNs experience of conflict between application of the tool versus their lack of certainty in what the NEWS clinical plan suggests. In questioning themselves and with a lack of certainty, they may decide to monitor the

patient for longer and see what the consequences were (thus mirroring the "*leave them and leave them and leave them*" pre-NEWS approach identified by a Senior RN above – section 5.3.1). Or they may follow the NEWS clinical response protocol without altering this to reflect their concerns, instead focusing on following the strategy dictated by the tool. For most of the Junior RNs there was a sense of conflict between their sense to follow NEWS and their gut instincts.

> *So, it is very prescriptive so if you look at a NEWS score and you think okay, and then they will talk to you but there is no thinking outside of the box….so there is still those patients that are slipping through the net, even though the NEWS score maybe isn't flagging them as highly as it probably should. Or the numbers might add up but actually the patient isn't well, so there is still a gap there, there is definitely a gap. (N6)*

> *It's good in some respects but it's also very subjective, I've had lots of times where I've like looked at my patient and they're not okay but the NEWS is zero or something and the doctor's like, 'Oh but the NEWS is zero'.(N9)*

One senior RN narrator reflected on an experience where a Junior RN had trusted the NEWS, but it did not accurately reflect the patient's condition. Following NEWS, and not combining the information with clinical judgement or an appropriate level of situational awareness, resulted in a potentially avoidable adverse event – a respiratory arrest. NEWS had given the nurse false reassurance.

> *So, I think one example that really sticks out to me, so it was a weekend, I think I was a bleep holder, and a patient who was on BiPAP overnight, went into respiratory arrest. When we'd spoke about with the Band 5 afterwards, she was like, 'But the NEWS score wasn't high, throughout the whole of the day, the NEWS score wasn't bad.' I said, 'What about, you must have looked at her, and thought things just aren't quite right.' So I think because she had relied so much on a NEWS score, it had almost held her back from escalating earlier, if that makes sense, because I think you think, okay, well if the NEWS score is alright, then maybe I*

don't need to escalate it, and then maybe not making as many clinical decisions…. I think the NEWS score had given her false reassurance, that everything is alright. Whereas, I think, probably, I mean certainly, I had felt that the patient must have, because their CO2 was, once we'd done the gasses, her CO2 was so high, she must have been drowsy. But when I spoke to the nurse, she was like, 'Oh well, I thought she was sleepy' (N5)

Reflecting on this narrative there are several aspects of this story that raise concern. The RN appeared not to notice the visual signs connected with drowsiness as a result of hypercapnia (elevated CO2) and rousable sleepiness. This was despite the patient being known to have respiratory complications as indicated by the application of overnight BiPAP therapy, which should have triggered an element of concern (Davies *et al.,* 2018). This may also reflect the earlier issues around compliance with RR. Given that nurses are reportedly poor at RR recording, this situation may reflect the consequence of this poor practice. With NEWS requiring recording of RR, this is a likely situation of falsification of RR, as changes to RR are highly likely before a Respiratory arrest. If the patient was 'sleeping' in the eyes of the RN, she may have chosen not to disturb the patient and allow them to rest, unaware of the consequences of her actions.

Trusting the NEWS at this pinch point may have significant repercussions for patient safety and the decision-making that takes place may be heavily influenced by situational awareness. Situational awareness refers to the knowledge of what is going on around you and is recognised as the first step in decision-making as it provides an understanding of what is happening and what might happen next (McKenna *et al.,* 2014). Junior RNs are reported to hold lower levels of situational awareness, a critical component of effective rapid response systems (Walshe *et al.,* 2021). As a result of their lack of situational awareness Junior RNs are reported to direct attention towards cues in their immediate vicinity (Sitterding *et al.,* 2014) which may explain their focus on NEWS alone. In addition, Junior RNs are subject to errors in perception associated with distraction, anxiety, and attentional failures (Endacott *et al.,* 2010; Cooper *et al.,* 2010, 2013; McKenna *et al.,* 2014; Tower *et al.,* 2019). This pinch point is further discussed in terms of its meaning for nurses in the next chapter at section 6.4.2.

5.4.3 But they walked in with that, clearly that's their normal

Senior RN narrator described a selective approach to the application of the NEWS clinical response protocol. This was not recognised as non-compliant behaviour but as taking a 'common-sense' approach to a particular case, reflecting an underlying belief that whilst NEWS offered nurses guidance to the steps that should be taken, those actions may not apply to all patients.

> *It's like, 'Oh well, they've got a NEWS of six,' 'Yeah, but they walked in with that. Clearly that's their normal,' (N4)*

Senior RNs described workarounds for when NEWS did not fit with their own beliefs of the care that should be given or the frequency that a patient should be monitored, with nurses evaluating the situation and prioritising that above the clinical response protocol. In particular, this was evident in narrators describing situations when the patient continued to trigger on NEWS over a long period of time and nurses became frustrated with the constant demands that NEWS placed upon them for monitoring frequency.

> *Yeah, but then it is quite annoying because like if you've got someone who's scoring a three and you've had them there for three days and that's what they're scoring but then you have to keep doing it every hour... Sometimes I won't do it hourly, I'll do it like two hourly or something but to be fair most of the time it's still in my brain that if they're scoring three and above I have to do it every hour so I just do it anyway (N9)*

Local adaptation of the NEWS clinical response protocol was evident as a result of clinical incidents but also when the clinical speciality denoted a patient presentation that held more significance than reflected by NEWS requiring an immediate response. Examples included chest pain in cardiac units and hypertension in neurological clinical settings. Narrators explained how areas with high numbers of admissions of acutely unwell patients also adjusted the clinical response protocol. Local adaptations were driven by the leadership team. This suggests a sense that NEWS is not recognised as suitable for all clinical areas, with local adaptation

opposing the underpinning rationale for the introduction of NEWS as a standardised tool to replace the multiplexity of previous EWS. It is understandable however that certain clinical areas place higher weight on specific parameters which are reflective of that speciality. Neurological deterioration for example would not reflect respiratory deterioration as a result of a complex chronic condition.

> *So, on [ward] I say they should be doing hourly obs when there's a NEWS of three which is not the same as the hospital policy but I feel that on [ward] patients have probably got a greater potential to deteriorate because they're so new into hospital…. the reason why I brought in the NEWS of three is we had two quite serious incidents quite close together and it was all about oxygen (N7)*

> *High blood pressure doesn't come up, it's just turned up red. [Laugh] Well, to me, I... I mean, being a nurse for a while, I usually go and speak to the doctor straightaway when their blood pressure is high, you know, 'Are we going to do something about this? Are you happy with this kind of blood pressure?' Because usually a stroke patient is... Our aim, if I'm not mistaken, with the protocol is below 140 systolic. (N10)*

In addition to subjective use of the NEWS by Senior RNs, variations to the tool that were initiated by the senior nursing teams were evident within the centre under study. Such modifications were described in areas such as acute assessment units where patients deteriorate rapidly and have an increased risk, triggering an adjustment in the threshold for medical review. Other adaptations were also identified in specialist areas where NEWS was felt less important than other signs and symptoms. The lack of NEWS trigger may give less-experienced nurses an element of false reassurance, however Senior RNs in these specialities would be expected to guide their Junior RNs to the need to monitor and report systolic blood pressure rises at a lower level than NEWS required because of neurological pathologies. Wheeler *et al.* (2013) and Capan *et al.* (2015) advocated for the ability to adapt EWS to suit the required patient cohort or the setting, rather than treating everyone the same. This was in part delivered in NEWS2 by the introduction of a second oxygenation scale (scale 2) to be used for patients with hypercapnic (type 2)

respiratory failure. A variation to NEWS is likely to impact on the way that nurses use the tool so requires careful consideration.

Through the lens of hermeneutic phenomenology (underpinned by the philosophy of Gadamer) and my interactions with the Junior RNs gaining insight into their world, their *Dasein* (Gadamer, 1977), I gained a new understanding of their predisposition to unreflexive rule-following which characterises the second pinch point. NEWS may be normal, but the Junior RN perceives there may be something wrong yet relies on the tool as their safety net and fails to act. In this situation, combined with a potential lack of situational awareness the RN, as identified through narratives in this study, may subsequently disregard other safety checks demonstrating an over-reliance on NEWS (Thomassen *et al.,* 2011). This behaviour may be driven not just by a reliance on checklists but by a culture in which Junior RNs experience difficulty in escalating without a trigger because they are unable to provide a compelling rationale to gain a response (Dalton *et al.,* 2018). Narratives, however, also suggest that Junior RNs often felt supported by their Senior RN colleagues who encouraged, rather than discouraged, them to share their concerns, highlighting a supportive and nurturing culture.

5.4.4 At first I don't like the computer ones

NEWS, which had started on paper charts, transitioned to electronic systems capturing physiological parameter data from vital signs monitoring and automatically calculating scores. Junior RNs and primarily younger narrators, however, welcomed the electronic version of NEWS as they had embraced NEWS in its entirety, adopting it with ease mirroring their adoption of technology in the wider world and their immersion in digital technologies. A well as support for technological advances, younger nurses appeared to appreciate the digital alerts that the system offered as reminder to undertake NEWS, almost like a reminder pinging on their phone which may have been part of their everyday life. They did however recognise the impact of digitalisation of NEWS on their more senior colleagues and the challenges associated with this.

> *I think it's been difficult for nurses who've been using the paper system to then go onto the computer. Because I've seen and*

heard them and they say, 'Yeah, it is a struggle to convert,' and they like seeing the trends on the paper as well. (N15)

I mean, at first I don't like the computer ones but, now I am used to it, it's better. It's quicker and... And also, the data is there, whereas, you know, you have to dig in with the old ones. (N10)

I like the computer… It works it out for you… you can just scroll across and see and you can set it for like the times like there's not necessarily big gaps in between. (N9)

The digitisation of NEWS was readily accepted by Junior RNs within the study who favoured the alerts, reminders, and automation of the system (section 5.4.4). This may be a reflection that those of younger age are more in tune with the digital world. Data quality may be enhanced by electronic systems (O'Donoghue *et al.,* 2011) however Senior RNs in this study expressed concern that their junior colleagues would often focus on machines, taking less time to look, listen and feel the patient, likely to the detriment of a holistic patient assessment (*Cox et al.,* 2006; Ansell *et al.,* 2015).

Whilst some participants discussed the benefits of NEWS digitalisation, Senior RNs held several personal views about this digital transformation. The strongest of these was the potential barrier that technology posed between nurse and patient, with nurses more focused on the technology than looking at the patient, talking to the patient and spending time with them. These skills were considered fundamental to the nursing role.

But I do sometimes worry when, you know, I just think it's a barrier between your patient, and I think sometimes we're not…it's kind of like, just put the computer to one side, just ignore the computer, go, and look and talk to your patient and tell…you know, ask them what their…how they're feeling…'(N4)

…and touch the patient and chat to them as well and, you know, you'd sit on their side of the bed and they were in the chair or, you know, sit on the chair, and do the blood pressure and pulse and everything and we did used to spend longer doing it and I think it's because all the machines do it, it's so quick now and they just go along, put it on…(N7)

The concern over digitalisation was not just in relation to NEWS but to the wider practices of nursing. Negative attitude towards digitalisation can be created through historic experiences and may impact on nurses' competence in using technology with resistance to change and age being key factors (Kontilla *et al.,* 2019). Unquestioning dependence on equipment and machines was highlighted through the findings (section 5.4.4) with Senior RNs expressing concern over the heavy reliance on technology to monitor patients. When a piece of equipment failed to work, rather than revert to more traditional manual means of undertaking vital signs narrators described hunting for other automatic equipment options. The consequences of this may include nurses losing skills to take manual measurements of vital signs, which are essential in the absence of functioning machine equipment. In addition, this suggests that nurses had less interaction with patients with nursing practice emulating a technical role than one dependent upon personal interactions. This reliance on automated equipment was also acknowledged by Purling and King (2012) who highlighted the lack of accessible and functioning equipment as a concern impacting on the detection of deterioration.

And, we have had someone who has had low blood pressure, Dinamap® didn't work, another Dinamap® didn't work so they got another Dinamap® and that didn't work. Somebody get a real stethoscope and actually let's feel this patient, and we did get the blood pressure, blood pressure was fine, but it is that, isn't it? I think we have moved, we have moved on but we have almost gone too heavily reliant on what the paper says and what the machine says… I don't know whether that is because we have got more technical anyway. (N6)

A further concern from this narrator highlighted the perceived difficulty in seeing the trends on the system, as opposed to traditional paper NEWS charts with graphical representation of the data and a visual prompt to changes through visual trend detection. Trends and previous readings are both core to understanding baseline information and essential to the interpretation stage of the clinical judgement process in detecting deterioration (Donoghue and Endacott, 2010; Churpek *et al.,* 2016; Healthcare Safety Investigation Branch, 2019). Some narrators perceived electronic monitoring systems to have inferior graphical representation for monitoring purposes which meant that some nurses neglected to review trends and baseline information and therefore changes in patient status were less obvious and could be overlooked. The value of trends with EWS is little explored through the literature despite the evidence base supporting the ability of vital sign trends to predict deterioration in hospital patients (Kellet *et al.,* 2013; Brekke *et al.,* 2019; Churpek *et al.,* 2016).

In addition paper observation charts offered an opportunity for development of interpretation skills through concept-based learning experiences where nurses learn through exploring relevant signs, symptoms, and presentations through a questioning and probing approach (Modic, 2013)This approach helps the Junior RN to explore patient situations with a preceptor, drawing on their own knowledge and that of others to work through the interpretation stage of clinical judgement to the next stage of responding.

It was so visually there, and you do not get that on there, and I think that's one thing they've got to really sort out actually. And there is a visual representation but it isn't half as good, it's not even a tenth as good, because it doesn't really…it's not so in your face as it was. (N4)

There is no trend. So, how are you supposed to look at a patient and say right okay his blood pressure is now 100 systolic, that might be him normally or it might be that it has dropped from a great height, but there is no trend, so they are not looking. So, they can't be looking at trends because there isn't one. (N6)

The consequences of poor interaction between NEWS and the RN are reflected in the two quotes above. If the nurse struggles to interact fully with the technology or the technology is unable to perform the task the nurse requires due to complexity, this could be detrimental to patient care. The ability to view patient trends in vital signs was highlighted as an essential skill in patient assessment in earlier narratives, without this baseline the nurses will be limited to their assessment of the individual.

In summary, this study has exposed a culture surrounding the use of NEWS reflecting, as identified in relation to Pinch point 1, traditional practices of 'obs' rounds and inappropriate delegation, accompanied by, as revealed in Pinch point 2,an often unquestioning, uncritical approach to the use of NEWS by Junior RNs with potential implications for patient safety. Pinch point 2, when a junior nurse may trust NEWS over their own feelings or clinical intuition, represents a point at which patient deterioration may be occurring but no action is taken. The perceptions of the senior RNs, whilst supporting the ability of NEWS to support their junior colleagues also highlighted an underlying concern over reliance on NEWS yet despite this concern, there was little evidence that the senior nurses were acting to address pinch point 2. Consequently, senior nurses may contribute to the risks in relation to identifying or preventing patient deterioration and as discussed next, may sometimes introduce a further element of concern.

5.5 Pinch Point Three: The Senior Nurse self-manages the situation alone.

The involvement of senior RNs in NEWS is reflected in the efferent arm of the track and trigger system, as responders to calls from their junior team members on the ward. Whilst the third pinch point refers to the actions taken by the Senior RN, there are several factors in the process prior to this pinch point which are discussed in this chapter as they influence the actions of the Senior RNs. Findings of this study suggest that Senior RNs are often the first point of contact irrespective of clinical response protocol requirements. Junior RNs seek support and reassurance from their senior colleagues before any further escalation. The risks associated with this pinch point are multifaceted but include the potential for a delay in formal escalation by informally escalating to the Senior RN as the first port of call. This may be further exacerbated by the Senior RN self-managing the situation with a reluctance to escalate or involve others at the early stages of recognition of deterioration. The implications of this are discussed later with regards to the shifting of responsibility;

missed opportunities for development of skills in the junior workforce; and the potential for an unconscious over-confidence in their competence.

5.5.1 It's your prerogative to look for someone who can help you.

The escalation process for Jnr RNs was described as typically involving an initial informal escalation to the senior nurse as the first point of contact. Junior RNs were heavily reliant on their senior colleagues who they saw as more capable in dealing with complex situations and sought their help as first line action. Narrators described how Junior RNs calculated the NEWS and alerted the Senior RN when the NEWS triggered or they were concerned, allowing them to assume responsibility.

> *I take a look at the patient first and, say their NEWS is 7, you can really see it in the patient that they are really unwell, then first I need to tell the charge nurse the patient is really unwell(N2)*

> *And also, with my senior colleagues that have been here, my line manager, they always guide us as well because they know what's happening to the patient. If we tell them what our intuition is, then they would advise us. (N16)*

Despite findings from other studies suggesting that Junior RNs face negative experiences when seeking support, such as ridicule or disregard for their concerns (Cioffi, 2000; Kielpikowska, 2006; Chua *et al.,* 2017), this was not evident in the findings of this study. Junior RNs were actively encouraged to seek help from their seniors, and less-experienced narrators demonstrated a sense of respect for their seniors' experience and opinion. Etheridge (2007) suggests that this reliance on seniors decreases with the development of confidence and experience, however the point at which this occurred in relation to Junior RNs' use of NEWS was not clear from the findings. The senior RN was described as playing a supporting role over the Junior RNs who lacked confidence but felt assured that they would get help from their senior nurses on the ward. The narrative around the role of the senior nurses was of a kind, caring and supportive person that would help the Junior RNs, relieving their fears. This is contrary to other studies (Azzopardi *et al.*, 2011; Massey *et al.*,

2014; Olsen *et al.*, 2019; Loisa *et al.,* 2022) that reported nurses' fear of reprimand from managers. This however may represent senior nurses in management positions who may not be working clinically.

> *It's your prerogative to look for someone who can help you. If the charge nurse is busy, you can always ask your sister or the ward manager or if the doctor is there, you can always approach the doctor but you will always find somebody. (N2)*

> *I think it's definitely easier to escalate to someone because if I see my daily work when I have ten patients and one is about to get sick because he's scoring 5 or 6 or whatever, if I escalate... How can I say this without sounding inappropriate? So, let's say if I escalate it's going to be someone else's problem because another team will come up and I will have help instead of doing everything by myself. So, seeing it that way, escalating is easier but it's still your patient, it's still our responsibility. So, I think sometimes our clinical judgment will get missed because it will be easier to escalate. (N12)*

The term 'always' became a significant part of this subtheme, reflecting deference to senior expertise with a sense of immediacy. Once escalation took place, there was a sense of 'passing the buck' that occurred when a senior person arrived. This was reflected both by the Junior RNs who admitted relinquishment of responsibility and the Senior RNs who accepted it. This was further supported by the process of documentation undertaken by the Junior RNs signifying the end of their input in that episode of care at the point that the Senior RN arrived. Whilst the practice of 'passing the buck' may result from a culture of blame (Radhakrishna, 2015) in some settings, this was not evident from the narrators in this study. This may reflect the feelings and fears associated with the responsibility of being a RN and potentially harming a patient as a result of a lack of experience (Halpin *et al.,* 2017). Deferring decisions to a senior colleague resolves this but, as discussed later, limits acquisition of skills in decision-making for the future.

The overall picture that emerged in this study was of a supportive culture. In particular, overseas-trained RNs were confident that escalation to their seniors was an expectation if they were concerned about a patient. This may reflect the hierarchical nature of the healthcare system that they had originated from where nurses followed orders, compared to the U.K. where they may be expected to be more autonomous critical thinkers and decision makers (Xu *et al.,* 2008). This highlights a potential area for further exploration with regards to recognition and management of the deteriorating patient for overseas trained nurses, who have demonstrated that their perceived use of NEWS equates to that of a less experienced U.K. trained Junior RN despite having several years of nursing experience prior to coming to the U.K. This is further explored in section 6.2.2 and the meaning of this for overseas nurses.

One explanation for escalating to senior nurses before calling Outreach that emerged through the hermeneutic process is that it might be because nurses are concerned about blame for failure to recognise deterioration, more so than doctors (Beane *et al.,* 2022). There may also have been concern that they would be criticised for calling Outreach which could have resulted in deferring decision-making to senior staff. This perception of potential blame as viewed by Junior RNs, may be a catalyst to handing over responsibility for fear of repercussions if they do not take the perceived appropriate action or if something goes wrong and they have not followed the clinical response protocol, blame will be placed on them (O'Neill *et al.,* 2021). Blame culture in the NHS is widely documented and viewed as a serious threat to improvement in patient safety which is reliant on healthcare professionals voicing their concerns in the prevention of adverse events regarding patient safety (Okuyama *et al.,* 2014). In 2018, NHS England described the implementation of a "just culture" as one where healthcare needs to gain a greater understanding of mitigating systemic factors behind errors, followed by a patient safety strategy in 2019 which acknowledged a prevalence of fear in NHS staff as a result of apportioning blame on to individuals.

However, in negation of fear of blame being a driver, narrators in this study mainly saw the process of escalation as securing help from someone senior with more experience and competence to make decisions on the management of the patient. There were however other perceived benefits of escalating, which included the ability to offload the deteriorating patient, either to Outreach or to a senior nurse, to

enable focus on other patients reflecting the difficulty for Junior RNs in balancing their workload.

> *So, they'll go to Outreach and then they think, okay, I've escalated that I don't need to worry about that anymore, I can move onto the next patient. (N7)*

Whilst the senior person would take over and deal with the patient freeing up time for the Junior RN, there may also be a sense of relief when this happened reflecting the fear and vulnerability experienced when managing a deteriorating patient when feeling unsure of your skills and expertise to deliver the care required. Thus, the shifting of responsibility does not need to be looked at entirely from a negative perspective. The NEWS clinical response protocol dictates the need for a clinical response team with appropriate competencies who should review the patient in a timely manner based upon the score. By passing over responsibility, the Junior RNs (who may not possess the appropriate competency) are following the clinical response protocol and potentially preventing further deterioration.

This taking over responsibility of a situation mirrors the principle of 'deference to expertise' seen in High Reliability Organisations (HROs). In an emergency within an HRO, control shifts to the experts and once the emergency is dealt with control shifts back, similar to the escalation and passing of responsibility as part of NEWS. Once the patient deterioration has been managed by the Senior RN, responsibility is passed back to the Junior RN. One unknown in relation to this pinch point is the definition of an expert, which may be either the Senior RN, the CCOT or the medical team in this instance. HSE (2011) suggests that in an emergency the expert refers to someone with the right expertise, irrespective of their hierarchical position, as opposed to during normal operations where a hierarchy of decision-making applies. This approach is recognised to allow decision-making to shift to reflect the nature of the problem. Therefore, a deference to expertise could refer to any member of the team with relevant expertise; how that expertise is measured remains subject to interpretation. HROs are widely discussed throughout the patient safety literature with admiration for how they balance effectiveness, efficiency, and safety despite having potential for large scale risk and harm (The Health Foundation, 2011). Deference to expertise is one of five principles that underpin a HRO, as discussed in

Chapter 1. A number of these principles can be applied to healthcare and the findings of this study.

The second principle is a preoccupation with failure, reflected by the need for continuous attention to anomalies that may be symptoms of larger problem within the HRO (Weick and Sutcliffe, 2015). The principle, alongside a commitment to resilience, may be applied by the NHS learning from its failures in a similar way that the then health secretary Jeremy Hunt proposed in 2016 announcing the launch of the Healthcare Safety Investigation Branch (HSIB) to move from a blame culture to a learning culture. In western healthcare, hospital performance and mortality rates are closely linked, with poor performance and failure linked to number of deaths. Variations in death rates are also linked to quality of healthcare provision (Goodacre *et al.,* 2015). Applying this principle, an HRO is focused on cues, ensuring that small failures do not snowball through robust reporting systems that encourage people to speak up about errors and near misses. Interestingly, feelings of doubt are important features in managing the unexpected (Weick and Sutcliffe, 2015) within this principle. This study provides evidence that NEWS does not remove the feelings of doubt felt by RNs about escalation, as reported in pinch point 2.

The third HRO principle is a reluctance to simplify and refers to the complexity of organisations and their need to embrace complex solutions to complex problems. Applying HRO principles a Senior RN, as leader, would challenge the behaviours around the use of NEWS as discussed in pinch point one and two, by focusing on data, benchmarks, and performance metrics to drive improvement. However, there is little evidence to suggest that there is any current challenge to this practice.

The fourth HRO principle, sensitivity to operations, refers to consideration of hierarchy and the ability for two-way communication between a leader and their employees with a leader having a good understanding of their employees' situation and work, irrespective of level. The findings of this study support the presence of a hierarchy in an NHS hospital and a supportive relationship between Senior and Junior RNs. Senior RNs demonstrated empathy for the Junior RNs and took over the care of the unwell patient. The Junior RN was then able to focus on the other patients and be less likely to miss other cases of deterioration which would further complicate the situation. This enables the Junior RN to get on with their regular work whilst the Senior RN deals with the more highly skilled role of managing the deteriorating patient.

One of the disadvantages of the HRO approach, which is also highlighted by this study, is the lack of experiential learning for the more junior and less-experienced members of the workforce. The HRO focus on the principle of deference to expertise does not support the principle of commitment to resilience when applied to healthcare. Through the senior member of the team dealing with the incident, resolving it, and handing back responsibility to the operator does not allow for the Junior RN to gain experience of the management of the deteriorating patient. As a result of leaving the patient with their Senior RN, the Junior RN is missing the opportunity for experiential in-situ learning through exposure to an expert (Stafseth *et al.,* 2016). The clinical response protocol suggests that at lower scores the RN should decide on the relevant action, however this is dependent on the Junior RN holding the knowledge and capability to make this decision. Benner (2010) makes a case for novices being transformed by experiences (such as the deteriorating patient) which offer potential to enhance understanding of being a nurse as part of their development. This highlights a missed opportunity for the development of skills beyond the noticing stage of clinical judgement and a potential skills gap in the future. Whilst taking over the care of the deteriorating patient may add to the burden of workload on the Senior RN, it may be viewed as both quicker and easier for the Senior RN to deal with the patient than support the Junior RN to do this. This is not in line with the NMC code (2018a) in which there is an obligation to teach others so, by the Senior always sidestepping teaching the Junior RN, they are at odds with professional expectations. In an HRO, trial-and-error approaches are not feasible as they may easily lead to catastrophic loss, similar to an emergency in a healthcare environment focused on optimum patient outcomes. To enable this resilience arguably means that all possible opportunities to develop the Junior RN should be taken, they are the Senior RNs of the future and will therefore become the 'experts'.

Failure to develop skills was recognised by several senior RNs who believed that Junior RNs often left responders to manage and as a result were deficit in necessary skills development. This, they explained, in turn led to Junior RNs not being able to manage urgent/emergency situations when they occurred reflecting their lack of skills, knowledge and confidence.

> *...most of the time they are not even in there, so the rest of the team is there, there is no sign of a nurse, and they are busy with other patients or whatever. But, somebody is a nurse for that*

patient, so where have they gone? I don't know whether it is fear – not fear, but a lack of confidence or whether it is they think I am going to ask something or we are going to ask something that they don't know…but I have worked with lots of different Outreach teams, and I have worked with ones who have gone in and literally put the fear of God into the nurses, so the minute they are called out everyone dispersed, Outreach have come in and literally take over, so that is not the point. (N6)

Listening back to the recording of this dialogue allowed me to sense the exasperation of this senior nurse who had clearly experienced this situation multiple times. It was not unusual for the nurse to respond to an escalation only to turn around and notice the nurse looking after the patient had disappeared out of sight when help arrived. Whilst frustrated, the senior nurse also had a sense of understanding with those junior nurses having witnessed previously a situation where the CCOT had ridiculed a junior nurse, so as a result the nurses had dispersed out of a sense of fear. This meant that once escalation had taken place the responsibility had shifted. Junior RNs had completed their part of the process and now it was someone else's turn to take relevant action. This shifting of responsibility was clearly frustrating for Senior RNs who felt that handing over responsibility was too easy and nurses would pass the responsibility on to whoever would accept it. It was unclear at which point passing of responsibility took place, whether it was at the point of escalation or at the point when the other person physically approached the patient.

Furthermore, Senior RNs in this study seemed accepting of the passing of responsibility from the Junior RNs when a patient deteriorated without considering the pressure it placed upon themselves and their workload. This is supported by Potter *et al.* (2005) suggesting that nurses' cognitive work is underestimated; at times the cognitive load and ability to respond to a situation is compromised leading to potential error or omissions in care. An example of the impact of cognitive workload was reported during the COVID-19 pandemic in 2020-2021, with senior nurses reporting decision fatigue associated with higher stress and unhealthy working environments because of the large proportion of critically unwell patients (Pignatiello *et al.,* 2021). The high cognitive load experienced by nurses in these conditions can reduce sensitivity to the task-relevant information and reduce their

capacity to absorb relevant information (Anton *et al.,* 2021) and increase risk of error. It is widely accepted that pressurised situations within healthcare can result in high levels of cognitive and emotional dissonance (Clouston, 2019) with fatigue posing a latent condition (Reason, 2000) translating into error-provoking conditions.

5.5.2 Outreach…I think they check patients as well

The Critical Care Outreach team (CCOT) featured widely throughout the dialogue with the narrative portraying a high level of respect for the CCOT who were seen as a supportive big brother. This was not an unexpected finding as it was my existing perception and supported by relevant literature (Endacott and Donohue, 2010; Johnston *et al.,* 2014; Stafseth *et al.,* 2016). However, through immersion in the texts I gained a deeper understanding of the perceptions and experiences of the nurses with regards to the role of the CCOT. I recognised a divide between the Junior RN perception of the CCOT and that of the Senior RN. The Junior RN needed (and admired) the CCOT the most for their skills and ability to deal with the deteriorating patient but also for the power associated with their decision-making. The Senior RN believed that they had less need for the CCOT (as they were viewed as their contemporaries) however they did recognise the support they offered to junior colleagues. Similar findings were reported by Wynn *et al.* (2009).

CCOT acted as the surveillance arm of the NEWS system, a 'big brother' approach, who surveyed the wards from a central monitoring function, remotely to the ward overseeing the actions of the ward nurses. RNs described incidents where CCOT contacted them to check up on what they were doing when a patient alerted through the electronic NEWS system despite them not escalating. This gave the junior RNs a sense of security and was viewed as supportive and helpful rather than invasive by the Junior RNs. The situation of dealing with an acutely unwell patient is challenging and complex so knowing that someone else was monitoring the patients remotely through the digital reporting system gave nurses reassurance.

> *Outreach is also monitoring those patients so they can also ask immediately to the nurses, 'Why are you not escalating patients who are scoring, let's say, five'. (N13)*

However, even if you don't escalate, when they see the NEWS score is high the Outreach usually phone the ward, 'Are you okay? Is this patient okay?' (N10)

Both N13 and N10 shared a sense of security the CCOT were watching over them and as Junior RNs they placed high value on the team with a reliance on them to respond to their calls for help. Through the dialogue, the CCOT were perceived as empathetic, non-judgemental, understanding and gave them the time that they needed rather than rushing them. The admiration that the Junior RNs held for the CCOT is further discussed in section 6.2.4 with regard to the lived experience meaning for nurses. This is contrary to other findings that Rapid Response Team (RRT) behaviours including a lack of professionalism and criticism were a barrier to escalation (Johnston *et al.,* 2014; Massey *et al.,* 2014; Bratten, 2015; Kitto *et al.,* 2015) and prevented nurses from calling for help. Compared to Doctors, Junior RNs felt that CCOT responded more favourably to their call and hence became the primary point of contact when they felt they needed help outside of the existing help available on the ward. This finding was not congruent with other studies which reported that less-experienced staff were discouraged from escalating directly to CCOT (Buist *et al.*, 2002; Bellomo *et al.*, 2004; Azzopardi *et al.*, 2011; Braten, 2015) in favour of escalating to the covering Doctor (Azzopardi *et al.*, 2011), who was viewed as inferior to the CCOT in this study, supported by others (Wood *et al.,* 2017).

I find it easier to escalate to the Outreach because I think it's easier to escalate to nurses; they're more willing to listen and they understand your worry because they're nurses as well and they've been in my shoes, they've probably been in the same position as me once so they're more understanding. But the doctors, sometimes they don't worry, they don't have the same worries as us, and something we're worried about they're probably... Even like consultants, they're like, 'Oh it's nothing'. (N15)

I think because they know what they were a band 5 before so they know the system and are more familiar with how the

responsibilities of the doctor is it make them more compatible with the nurses (N3)

Similar to the clinical senior nurse role, there was a sense of support from the CCOT who were perceived to understand the plight of the Junior RNs, in a similar way to other senior nurses being empathetic with the feelings of being a junior RN (Section 6.2.3). This may reflect the fact that the CCOT was primarily made up of nurses or it may be a reflection of the personality of the CCOT, but they were reported to be approachable and knowledgeable. What became evident through the Junior RN stories was that despite the CCOT checking up on nurses, this was accepted and not viewed negatively as interfering but a requirement of their role. This may be in recognition of the role of CCOT being underpinned by patient safety improvement (NICE, 2018) or a reflection of unquestioning protocol driven behaviour (Heidegger, 1966).

They are quite involved, very involved, because I think they check patients as well because they would know who's poorly. So they'll check up on their observations, sometimes if they're scoring high they'll call us and say, 'Can you just repeat the observations for this patient because they are scoring high?' Because I had that one patient, I think he's got like low blood pressure and then I forgot to re-check it and then they called. But I did re-check it, I just haven't put it on my documentation. (N14)

Whilst Junior RNs were perceived to have greater dependence on the CCOT, it became clear that Senior RNs were less likely to call them to help with a patient and at times suggested they contacted the CCOT to 'stand down' before they arrived to the ward, a finding echoed by Wynn *et al.,* (2009). Senior RN participants likened members of the CCOT to their own level of competence and ability and did not always feel that they could add much to the situation unless they wanted a second opinion to look at the patient when they were struggling to see the cause of a deterioration. This may be as a result of over-confidence in their clinical ability reported as one barrier to escalation to Rapid Response teams (Pattison and Eastham, 2012; Petersen *et al.,* 2017; O'Neil *et al.,* 2021). Recognising that CCOT were likely to pick up a patient with a high NEWS during their routine surveillance,

senior RNs described how they would contact CCOT to explain that they were managing the situation themselves rather than allowing them to come to the clinical area and adopt responsibility for that patient. A further interpretation of this situation may be that senior RNs recognise the dependence of their junior team members on the CCOT, placing increased pressure on the team, therefore leading to a reluctance of the senior RNs to further increase the burden on the CCOT (Prower *et al.,* 2022). This is undoubtedly further compounded by managers being held to account for failures that are outside of their control such as staff shortages (Oliver, 2018) and the senior nurses' desire to be supportive of CCOT colleagues.

> *'No, I don't think so, we know why the patient's like that, we know why they're triggering that, and we are managing it, they're on the treatment, they're on the right antibiotics, they're on oxygen, the humidifiers, they're on those, that is the treatment. What else could Outreach do that we can't do? They could take some ABGs, I suppose, really, do we think that's necessary?'(N4)*

> *But usually if you flag comment they don't normally come up when you say to them you're not worried about a patient and you're monitoring (N10)*

Reflecting the confidence that develops with experience, Senior RNs in this study applied the NEWS protocol flexibly for lower scores based on their clinical judgement. As suggested by McGaughey *et al.* (2017), this was underpinned by pattern recognition and intuition, viewing the referral protocol as a guideline rather than a mandate. They described situations where they used their clinical judgement and decided not to escalate but instead to implement and evaluate interventions, self-managing the situation prior to formal escalation. This finding is in keeping with other studies (Shearer *et al.,* 2012; Odell 2015; McGaughey *et al.,* 2017; Petersen *et al.,* 2017; Foley and Dowling, 2019) where nurses believed that their skill and knowledge in patient management was sufficient to delay automated escalation and take control of the situation themselves, feeling confident in their ability to manage a deteriorating patient. One of the criticisms of EWS is the limited sensitivity to intuitive knowing and the pattern recognition mechanisms that enable experienced and expert nurses to quickly and easily attain situational awareness and predict

deterioration (Romero-Brufau *et al.,* 2019). Senior RNs in this study saw NEWS as one piece of a larger jigsaw puzzle, a triage tool which flagged potential deterioration and offered a measure for how sick that patient was but was not the determinant of the action they took.

Whilst the Senior RN is accepted to have superior clinical skills and knowledge, their ability to apply contextual knowledge when this may be their first interaction with the patient is questionable. The Senior RN is dependent on the information provided by the Junior RN but the findings of this study suggest that the Junior RN often lacked basic information and skills to provide a detailed report. Contextualisation, in this situation may, therefore, be a series of questions to undercover the background to the presenting deterioration which will help to determine the interpretation required for clinical judgement. Under pressured circumstances, Anton *et al.* (2021) suggests that expert nurses apply sub-conscious or intuitive decision-making processes, grasping complex situations quickly, making assessments and judgements demonstrating a shift from rule-based thinking to intuitive approaches. Senior RNs within this study were perceived to represent an 'expert' status in their ability to focus on the whole picture (Benner, 1984) in relation to clinical judgement and deal with the situation. Whilst the development of expert skills (Benner *et al.,* 1992) is related to the use of past experiences to guide performance, it can also be subject to decreased rationality and therefore a larger element of bias (Kunreuther *et al.,* 2002; Cappelletti *et al.,* 2014).

There is little exploration of the value of experience as an unconscious guide in decision-making (Nibbelink and Brewer, 2018) with potential for over-confidence in a situation delaying escalation, subsequently increasing risk of adverse patient events (Chua *et al.,* 2017). This possible over-confidence may also be reflective of the Kruger-Dunning effect (Kruger and Dunning, 1999) which suggests that some people tend to over-estimate their competence in situations, lacking self-awareness and insight. Dunning *et al.* (2003) further suggested that some people (the unconsciously incompetent self-perceived 'expert') base their perceptions of performance on their preconceived notions about their own skills which do not necessarily relate to their objective performance as perceived by others. This over-confident practice arguably could lead to erroneous decisions being made (Petersen *et al.,* 2014) and risk of failure as a result.

In summary, this study has revealed a heavy reliance upon the senior nursing workforce as the first point of contact for any concerns reflecting a deference to expertise, which is led by the clinical response protocol. There is an impetus to refer to the Senior RN before contacting the CCOT, but getting a response from either is in the best interests of the patient who is reviewed by a Senior RN or the CCOT who take over their care for the duration of the acute episode. It could be argued that in mirroring this HRO principle, the Senior RN would defer to the CCOT, however this is not automatic as the Senior RN views themselves as an equivalent expert. Whilst the involvement of the Senior RN supports the Junior RN in the management of the patient it does not allow their development of skills and expertise which will enable them to decrease their reliance on the Senior RN and manage the situation themselves in the future. This reveals a skills gap in the nursing workforce with implications for the future of nursing and patient safety. This is further discussed in section 6.4 in relation to clinical judgement skills.

5.6 A new horizon – the impact of three pinch points

The study has revealed three pinch points in the use of NEWS through the exploration of the experiences and perceptions of nurses. Failure at a single pinch point is likely to be detrimental to patient care. It is therefore reasonable to assume that failure at two or all three pinch points could lead to a less favourable outcome such as a serious adverse event.

Application of the Swiss Cheese Model (Reason, 1995) further supports the potential of a serious adverse event through a combination of pinch points. As discussed in Chapter 1, Reason theorised that one failure alone may not cause a negative outcome but when multiple failures all line up errors or adverse events can result, as demonstrated in Figure 5.3 (overleaf).

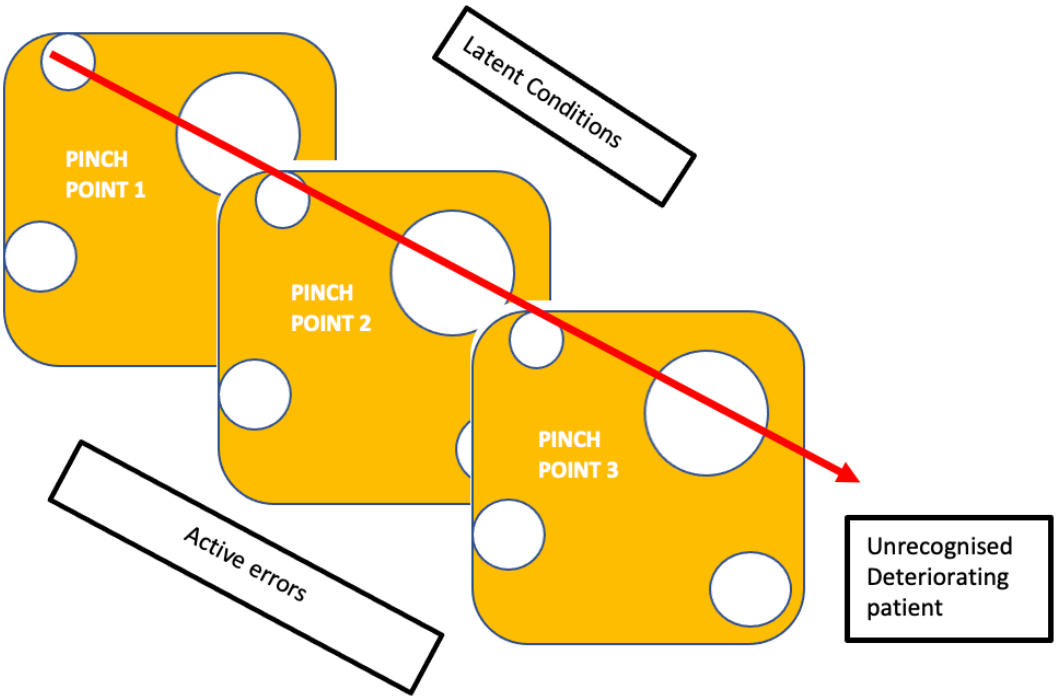


Figure 5.3 Swiss Cheese model applied to Pinch Points

Application of each pinch point of NEWS to the model (Reason, 1995) demonstrates an association with active failures and latent conditions (the holes in the cheese). Some of the holes are active where an error occurs, some holes are latent and therefore inherent in the system or organisation. Table 5.2 presents a summary of the active failures and latent conditions identified within the study applied to each pinch point.

Table 5.2 Active failures and latent conditions of pinch points

Pinch Point	Active failures	Latent Conditions
1	HCAs with questionable competence undertake vital signs Poor compliance with NEWS HCA delays escalation	High RN workload leads to inappropriate delegation. Lack of training and competencies for HCAs Culture of 'obs' rounds
2	Junior RN reliance on NEWS Rule following behaviour NEWS false negatives not recognised	NEWS– false negatives Organisational focus on compliance of NEWS Electronic NEWS lack trends

	Heavy reliance on escalation and handing over of responsibility	Lack of experiential learning for Junior RNs Lack of national competencies for RNs
3	Senior RN does not follow clinical response protocol - does not escalate Senior RN over-confident	Organisational reliance on senior staff within the hierarchy

Failure, therefore, at a single pinch point does not necessarily lead to further failure as the next layer of 'cheese' acts as a defence and represents an opportunity to stop or avoid an error. If the holes in each layer come into alignment, the potential for failure at each stage becomes real and may result in a catastrophe. Reason's model (1995) acknowledges that no system involving humans is perfect. Failure of systems can be due to both people and the systems. There is no single solution and failure is inevitable however there are ways to minimise failure. Reason (2000) highlights the learning that healthcare can take from safety critical industries or HROs as discussed in section 5.5.1 by making systems as robust as practical to deal with both human and operational hazard. This is discussed further in Chapter 7 with recommendations for clinical practice.

5.7 Chapter summary

Participants in this study demonstrated an element of blindness to the risks associated with the practice of using NEWS. Errors and poor practice in vital sign monitoring and reporting were frequently identified but appeared to be accepted as usual practice. Delegation continued to occur despite concerns over the competence of the person receiving the task. Junior RNs were heavily reliant on the principles of deference to expertise with their Senior colleagues accepting of this behaviour. As a result of this behaviour Junior RNs were missing experiential learning opportunities. The Senior RNs self-managed deteriorating patient situations to an extent without escalating, demonstrating another risk based on potential over-confidence in their skills.

The use of NEWS is well-established and perceived to play an important role in the recognition and management of patient deterioration. Through application of a hermeneutic spiral of interpretation this chapter has revealed new perspectives on

nurses' use of NEWS for clinical practice. Through a fusion of horizons, new understanding is presented through three pinch points. Embedding of NEWS into nursing care has impacted the delivery of safe nursing care across the hierarchy of clinical practice. Whilst there was clear evidence that the introduction of NEWS across the NHS was supported and perceived to provide many benefits for patient safety and the timely recognition of patient deterioration, there was a failure to recognise that every time that NEWS is used there is a potential for any of three pinch points to affect the course of action that is taken. This could lead to failed opportunities to prevent deterioration or recognise it at a time where deterioration may be reversible. Chapter 6 will consider the implication of the three pinch points identified in the use of NEWS and the meaning of these for nurses themselves, the nursing profession and the development of nurses' clinical judgement.

Chapter 6: Using NEWS: the meaning for Registered Nurses

6.1 Introduction

The research question for this study was “What are Registered Nurses’ experiences and perceptions of using NEWS in the U.K. as part of the recognition and management of acute adult patient deterioration?” Through the identification of three separate but synergistic pinch points, the previous Chapter 5 presented the meaning of using NEWS for clinical practice and the timely detection of patient deterioration. The core purpose of hermeneutic phenomenology focuses on the human experience as it is lived, exploring the meaning of the phenomenon for those that have experienced it, understanding the complexity surrounding the phenomenon to enable an interpretation of those experiences (Tuohy *et al.,* 2013). This study therefore offers an interpretation of the personal journeys of RNs in the use of NEWS. This new and deeper understanding of what using NEWS means to nurses in the context of their experiences will enable recommendations for the future use of NEWS as part of the recognition and management of acute adult patient deterioration (section 7.5 and 7.6).

This chapter presents the findings and emergent new horizons in relation to the meanings and implications for the nurses themselves as the users of NEWS. Three themes are presented in relation to the meaning for nurses:

1. Developing competence and confidence using NEWS
2. Clinical Practice Culture in using NEWS
3. NEWS and clinical judgement

The first theme explores the experience of being a competent and confident user of NEWS as an RN. It focuses on the experiences and perceptions of Junior RNs, overseas nurses and Senior RNs, before considering the implications of introducing NEWS and the associated response protocol and the meaning for nurses. The second theme explores the workplace culture and compromises concurrent with the three pinch points that are associated with this culture for nurses. One aspect of this theme is the professional, ethical and moral implications for nurses resulting from delegation to the HCA workforce.

The third, and final theme relates to the meaning of using NEWS in relation to the interaction between NEWS and nurses' clinical judgement and decision-making. The review of existing literature on nurses' use of EWS presented in Chapter 2 highlighted a gap in the evidence of the impact of EWS on clinical judgement and decision-making processes. The process explained in Chapter 4, in relation to the Gadamerian spiral (Figure 4.1) to identify meaning and enter into the life world of the RN narrators, was followed. Findings related to this third theme are discussed in relation to existing literature and through the application of Tanner's model of clinical judgement (2006) as the theoretical underpinning for this study (discussed in Chapter 3).

6.2 Developing competence and confidence using NEWS

As the professional and statutory body for nursing, the Nursing and Midwifery Council (NMC) sets the standards and proficiencies for the nursing profession. In the most recent version of the proficiencies the NMC refer to patient deterioration three times in relation to the RN being able to 'demonstrate the knowledge and ability to respond to signs of deterioration and… make 'sound clinical decisions' at the point of registration (NMC, 2018, p18). Nurses' competence and confidence in recognising deterioration is widely discussed (Smith and Aitken, 2016; Petersen *et al.*, 2017; Chua *et al.,* 2019; Foley and Dowling, 2019; Smith *et al.,* 2020; Smith *et al.,* 2021) yet rarely explored from perceptions of nurses in relation to the use of NEWS.

As alluded to in section 5.4.1, preparation for use of NEWS understandably varied according to the background and experience of the narrator which impacted on their self-reported levels of competence and confidence. A natural divide occurred in interpretation of these experiences, placing people into two groups of responses. One group who had been RNs before NEWS was introduced and therefore had lived through the experience of NEWS implementation, reflecting upon their experiences and expectations. The other group had not experienced the implementation; NEWS was in place before they became RNs and so had been included in their educational and clinical preparation process. This group could be sub-divided into newly qualified U.K. educated RNs and overseas-trained nurses with different perceptions of NEWS being identified as a result. With NEWS being introduced at different times in their career, variation on the importance of NEWS in their clinical role and its meaning for them personally was reflected in their use of the tool.

6.2.1 Being a Junior Nurse

Reflecting on their experience as nursing students, newly-qualified RNs reported a general awareness, the theory of the tool having been covered within their educational programmes. They did, however, recall a lack of perceived preparedness for their transition to the registered nurse role with regards to the management of deteriorating patients.

> *An acutely ill module… so we have to assess A to G assessments but I think the escalations of the NEWS just came when you were in the hospital when you're in practice. I can't remember, yeah. They've shown us the paper where you put your data, but I can't remember... But yeah, because I did my last placement in [** ward] . But because you have a safety net as a student. I think that was a big difference. The transition is really…like jumping in the deep end of a swimming pool. (N14)*

This narrator offers an account which highlights the difference between using NEWS as a student as part of a learning process and how this offered a sense of protection from the real world compared to the reality of being an RN. The concept of having a safety net as a student was perceived as instantly removed upon qualifying.
The idiom 'jumping in at the deep end' is used within this story to describe the process of doing something without guidance or assistance as a student nurse, reflecting a sense of fear, a feeling of being unprepared, associated with negative emotions as a result of lacking both confidence and competence. Concerns about RNs' knowledge and skills to be able to recognise and respond to deterioration are widely discussed in the literature (DeVita *et al.,* 2010; *Askew et al.,* 2012; Waldie *et al.,* 2016) and the implications are that such deficits may result in unacceptable consequences (Bliss and Aitken, 2018). One perceived factor contributing to this lack of preparation was linked to the education provided for the pre-registration nurse as part of their degree programme.

> *We did the simulation in the university in the labs but that was it really, it wasn't... And it's not the same as being actually in a hospital, it's... It does help you but it's not exactly the same. And*

we also did a resus simulation as well but that was just once, there wasn't much about... like what I've seen on the ward, there wasn't really much at uni really; it's not really the same…So we had an exam which was handwritten and we got the scenario beforehand and then we sort of just had to memorise what you'd do an A to E assessment. And also, mine was like a morphine overdose so you just had to sort of remember that. But it wasn't realistic because you don't really get that very often, a morphine overdose, especially on the ward, it wasn't like something that you're really going to encounter all the time (N15)

This lack of preparation for reality was further supported by N15 who was quite clear that her pre-registration nurse training had not been sufficient in preparing her for the reality of deterioration in the clinical area despite it being supported by simulation, widely recognised for increasing confidence in decision-making skills (Stirling *et al.*, 2012). The chaos associated with a deteriorating patient situation may be difficult to simulate, confirmed by the reported use of unrealistic scenarios experienced by RNs in this study which were perceived to hinder both learning and application to practice.

The aim of Pre-Registration nursing programmes is to develop both the competence and confidence of the RN however the dialogue confirmed this had not been achieved, irrespective of the various teaching methods adopted. The lack of skills upon qualifying is likely further impacted by the presence of 'Failure to fail" (Duffy, 2003) where clinical mentors pass students despite doubts about their clinical competence, in particular by final placement mentors in failing students who should have been failed earlier in their studies. Practice assessment is complex and subjective (North *et al.,* 2019) and reliant on multiple factors including adequate support and time for the process. My reflections upon this led me to recognise that for some, relief as a student nurse at passing an assessment that perhaps should not have been passed, might have later resulted in the negative feelings of fear and unpreparedness associated with encountering the real world of deteriorating patients harder to control.

For many years the practice readiness of newly qualified nurses (NQNs) has been debated, with suggestions that fully preparing someone for the realities of being a

qualified nurse is impossible (Irwin *et al.,* 2018). Whilst the move to a theoretical model of nurse education in the 1980s aimed to produce confident and competent practitioners (UKCC, 1986), there were concerns regarding fitness to practice leading to development of preceptorship programmes (NMC, 2018e). Preceptorship programmes were developed to support the transition from student nurse to RN with the implementation of a preceptorship framework reporting organisational benefits such as reduction in variation, attrition, and retention. NQNs have reported improvement in both their competence and confidence as a result of preceptorship, however negative experiences were reported where poor relationships existed between NQN and preceptor (Health Education England, 2016). Preceptorship programmes generally last one year, yet becoming a competent practitioner is likely to take two to three years (Benner, 1982) and therefore newly qualified nurses are dependent on a supportive clinical environment in which their skills, competence and competence can develop for them to move on from their novice level.

> *I do think there is a gap in what we are teaching nurses before they ever come out qualified, because I think with the alert course, to teach somebody ALERT© once they are qualified, I thought was a bit backwards in going forwards. I think they should come out as a qualified nurse knowing that, so I think there is a bit of that there, so I think it was always felt it was a bit of a shame that we were having to teach qualified nurses how to identify somebody who is going off. (N6)*

This lack of preparedness for recognition and management of deterioration, was echoed by Senior RNs, whose perceptions confirmed those of the new NMC registrants, that upon registration newly qualified nurses were not fully equipped in the skills needed for recognising patient deterioration (Missen *et al.,* 2016). The use of the words 'going off' (N6) place weight upon the deteriorating nature of the patient's condition, signifying the patient safety implications related to the lack of skillset of newly qualified nurses in recognition of deterioration. N6 focuses here upon the ALERT© course, a popular one deteriorating patient day course in the U.K. (Portsmouth Hospitals University NHS Trust, 2023) which is often offered to RNs, however this narrator believed this is offered too late and should be part of a pre-registration course. Objectives for ALERT© are not dissimilar to the NMC Future

Nurse standards (2018), where upon the point of registration nurses should be able to meet these standards.

In addition to a perceived lack of skills in the NQN workforce, narrators described a lack of standardisation and a haphazard allocation of Deteriorating Patient educational opportunities across the organisation, describing training courses of varying length and exposure, from one day internal workshops to university courses. Not everyone was seen to be getting the same level or standard of education which would inevitably lead to problematic diversity in the capability and skills of the nursing workforce. Poor retention of the content in educational provision was also highlighted as a potential issue by the same senior RN who delivered some of the education on the deteriorating patient and the use of NEWS. One example referred to the use of the Airway, Breathing, Circulation, Disability, Exposure (ABCDE) assessment, the structured assessment tool advocated by the U.K. Resuscitation Council (2021). Whilst ABCDE underpins the NEWS tool, it is an initial assessment rather than in-depth as per full ABCDE. Full ABCDE was included in educational provision, yet there was a sense of an underlying frustration that nurses did not physically practice this skill when assessing deteriorating patients but undertook NEWS alone.

> *[ABCDE] I teach it all the time, all the time! We teach it in everything we do… Doctors again are very good at documenting it like that, so are the nurses. It depends, some wards are better than others. But, when they come to training and they start off doing assessments, they go straight for blood pressure. So, I am like so where are you in your assessment? I think they go away with the intention of doing it, but no it doesn't always transpire, so this is where I think classroom teaching is one element, but then we have got to get out there and do it, and that is what we try to do. We try to get out as often as we can, to actually run the mock peri-arrest and cardiac arrest on the wards, and just watch and see what happens. Because that is when you know what actually happens, but we do know going to peri-arrest, the handover you get is very sporadic. So, I say to them you only need to hand over A, B, C, D, E, nice and easy, just tell me what you felt, why you are calling me. (N6)*

There was a clear sense of exasperation that the continued efforts to educate nurses about ABCDE assessment were perceived as fruitless and the best practice taught was not continued outside of the classroom. The reason for this remains unclear but may reflect the interpretation that as NEWS is mandated then that is perceived as the only assessment that is required and additional fuller ABCDE assessment is not required.

The lack of ABCDE assessment may also reflect the poor practice that had been highlighted around respiratory rate assessment (section 5.3.2), where there appeared to be a normalisation of deviance. Normalisation of deviance (Vaughan, 2004) is a theory which proposes that people within an organisation become so accustomed to a deviant behaviour the more it occurs so it becomes no longer considered deviant inside the organisation. In application to patient safety, the nurse may justify breaking the rules because they believe they are inefficient, counter-productive and therefore they find work-arounds in the belief that they are superior. For the Junior RN, despite their greater likelihood of displaying rule-based, normative behaviours in relation to following the NEWS protocol (section 5.4.1) they may have come to believe that an unsafe practice is acceptable, maybe because other people do it or similar rules have been broken in the past, or even that they were able to pass an assessment as a student nurse with a falsified respiratory rate, leading to a lack of patient safety culture and a culture of complacency. Newly graduated healthcare professionals are recognised as easy prey for learning deviant behaviours that have been normalised in their work environments (Banja, 2010). This may also reflect their lack of belief in the ABCDE assessment tool or that an ABCDE assessment takes too long in practice within a pressurised environment characterised by nursing and skill mix shortages (Hogan, 2006; Odell, 2010; McGaughey *et al.,* 2017) and therefore they feel they can justify their omission of delivering assessment despite being taught how to do it and why it is important.

6.2.2 Being an overseas nurse using NEWS

Newly-qualified nurses did not perceive that much emphasis was placed on the use of NEWS in their U.K. based preparation through their undergraduate nursing programmes. In contrast, for overseas-trained nurses, NEWS appeared to hold a high level of significance reflecting an almost symbolic part of their journey in preparing to practice in the U.K. From the outset of their journey of transition to NMC registration in the U.K., NEWS was an important component impressed upon them

from their pre-arrival learning, followed by the preparation for the NMC test of competence which included NEWS. As a result of this there appeared to be significant gravitas placed on the tool, reflected through the dialogue.

Yes, so they had to teach us and also it's part of the exam that we had to take to qualify, the OSCE, so we have to be in full grasp of it before we take the OSCE, so yes.(N16)

I heard about the NEWS and they talked about the NEWS when I came here that was part of the two weeks orientation, that was NEWS1 which was included in OSCE (N2)

There is some sense that by NEWS being included in the test of competence which is required to gain NMC registration a higher importance was placed upon the use of the tool, driving compliance. Yet, whilst theoretical preparation for NEWS was perceived as thorough, practical application was seen as more challenging, alongside the challenge of adapting to working in a vastly different environment in another country.

When I was studying for my registration here in the U.K., so all the study materials would include NEWS, so I don't know how it goes really but theoretically I would study it so the triggers, yes, I just knew it by theory. But, when I came here and put it into practice, there is a certain level of when you are practicing it is different. (N8)

From the outset, the NMC test of competence drives the importance of clinical skills and safe practice and less emphasis on NHS culture, which may explain the experiences and the theory-practice divide reported by this overseas nurse. When arriving in the U.K. overseas nurses may feel a sense of de-skilling as a result of the differences in healthcare practice and the scope of practice (Taylor, 2005). NEWS is new to overseas nurses but the skills associated with vital signs measurement are not. My reflections suggested that these were already RNs and so the meaning that they ascribed to passing the NEWS OSCE was not merely symbolic of their

transition to working in the U.K. but was also an enduring aspect of their sense of themselves as competent RNs. Despite this, overseas nurses may not be trusted in their ability to recognise and respond to patient deterioration by their U.K. trained colleagues, yet they are often experienced nurses in their home countries which may not be fully appreciated when they arrive in the U.K. This may reflect a U.K. nursing-centric patient safety culture in which U.K. nurses see overseas trained nurses as inferior and inexperienced, with their recruitment into the lower grades of nursing associated with a mismatch of expectations between home nurses and overseas nurses (O'Brien, 2007). Viken *et al.* (2018) suggest the existence of a cultural dissonance which involves the overseas nurse's self-confidence and impact upon their professional effectiveness, alongside discrimination and challenges in communication. This may suggest an undercurrent of hostility and possible racism underpinned by a perception that U.K. nurse training is superior to overseas and negative perceptions about their clinical abilities (Batnitzky and McDowell, 2011). Despite high diversity and increasing numbers of overseas staff in the NHS, evidence of racialised hierarchical inequities and reports of discrimination, bullying and harassment continue to be experienced (Woodhead *et al.,* 2022).

Preparedness of overseas nurses for the NHS culture is perceivably lacking. The concept of organisational knowing (Terry *et al.*, 2017) and the importance of nurses understanding their organisation and the rules, priorities and targets associated with it are critical to be able to develop in their role. Alexis' hermeneutic phenomenological study (2013) with overseas nurses reported a number of challenges experienced by overseas nurses in adapting to the norms and values that underpin the NHS, primarily as a result of cultural differences for which they had not been prepared. This impacted directly on their sense of belonging and their sense of being viewed as outsiders. Cultural assimilation takes time and may impact on a sense of belonging for overseas nurses. Home grown nurses may need to make adjustments to the way they treat overseas colleagues who have reported a high level of tolerance to their mistreatment by U.K. nurses (Alexis, 2013). This highlights the importance of a nurturing and inclusive culture which should be driven by compassionate leadership, underpinned by an organisational commitment to high quality and passionate care, reinforcing the nurses' sense of vocation (West *et al.,* 2020).

For overseas nurses, being competent in NEWS meant that they felt a sense of belonging as UK-registered nurses. Internally to those nurses, however, the sense of

inferiority that they experienced contributed to a lack of perceived belonging. The need to belong is a basic human need with the lack of belongingness associated with stress, anxiety, and a lack of esteem (Mohamed *et al.,* 2014). Belonging relates to the desire to feel included, valued, respected and supported within a team as well as to care and be cared for (West *et al.,* 2020). The sense of needing to fit in and belong is highlighted by the quote below in that an overseas nurse questions themselves as to how they should respond.

> *Should I ask the on call to visit the patient? Or should I wait for 15 minutes check the Obs again and then if it's not improving call the on call. So I would ask the sister. (N2)*

The sense of indecision demonstrated here by multiple questions, suggests that either the overseas nurse does not feel trusted by the senior colleagues to make decisions, or she does not trust her own judgement, doubting her ability, underpinned by a lack of confidence in decision-making. This may reflect a cultural difference in critical thinking in nursing between their home countries and the U.K. where nurses are encouraged to be critical thinkers, as opposed to developing countries where nurses undertake a task-based medically driven model of nursing practice, without question of the doctor's absolute authority (Pressley *et al.,* 2022). It may, however, be behaviour that has developed from the lived experience of being an overseas nurse who has encountered the type of discrimination, bullying or harassment reported by Woodhead *et al. (*2022).

6.2.3 Being a Senior Nurse

Senior RNs described the experience of grappling with their role in enhancing confidence and empowering less experienced nurses to follow their instinct or their gut feeling even when it did not match the NEWS. Confidence-building was an important aspect of the senior nurses' role, balancing the use of the NEWS and reinforcing the concept of intuition.

> *I think, I still think NEWS is important but is important, but I don't know whether it's about giving the junior workforce the confidence*

and empowering them to escalate on a gut feeling, rather than just a score. (N5)

The senior RN shared her uncertainty around the benefits of NEWS, recognising that whilst it was important it was not encouraging the junior RNs to consider their intuition about the patient as valuable. This clearly meant that she placed considerable value on clinical judgement and the need for nurses to feel empowered in their decision-making outside of NEWS. A conflict between NEWS and clinical judgement featured throughout the shared experiences with multiple factors identified that impacted on nurses' use of clinical judgement including confidence, intuition, knowledge, and skills. The development of clinical judgement is explored in section 6.4 later in this chapter. Regardless, Senior RNs shared a sense of concern that the use of NEWS on a standalone basis was not effective.

Yeah, but then it just has to go alongside clinical judgement like you can't just use it as a tool all on its own because that doesn't work. (N9)

This was a clear theme in the experiences of the senior RNs that they recognised the relevance of clinical judgement in the use of NEWS but also the role of experience to develop those skills. In contrast to the Junior RNs, Senior RNs felt less constrained by NEWS which suggested higher confidence in their clinical judgement skills. There were instances where they had operated outside of NEWS by advocating in the best interests of the patient and going against other healthcare professionals. This meant standing up for what they were confident in, i.e., their own clinical judgement and values.

I went to a peri-arrest the other day and it was a lady that had literally just arrived from A&E and she had just vomited two litres of fresh blood with a history of CA oesophagus and everyone was so focused on what was… that they needed to make this correct and I just stood there and I went, 'I'm really sorry but this lady's dying, can we just get her husband in and let him have a last few minutes with her?' And the junior doctors apparently felt undermined by me (N7)

The situation described by N7 is an emotional story of a patient with a palliative diagnosis for whom following NEWS was not considered appropriate and in which she needed to intervene. The senior nurse discussed this with a clear sense of pride demonstrating confidence to de-escalate and tell others to stand down, despite NEWS indicating otherwise. This nursing practice is reflective of a person-centred approach rather than symptom-focused or task-orientated approaches which are recognised to focus on restoring health rather than holistic care (Kwame and Petrucka, 2021). The confidence in de-escalation shown by the senior nurse supports the concept that NEWS should support decisions not determine them and supports the importance of clinical judgement in decision-making. This correct decision-making supports the perceived ability of senior nurses, working at a higher and more autonomous level, to deliver patient-centred care using enhanced skills to deal with more complex cases, with the confidence to focus on their clinical judgement.

The sense of fulfilment that was clear in the way in which the nurse reported this situation was synonymous with her satisfaction in making a direct impact to patient and family experience which is linked to job satisfaction in nursing (Senek *et al.,* 2020). As a result of this, it was clear that she felt respected, at least by those she considered important, despite the implication of allegedly undermining the (junior) medical team in the process. This suggested she was proud of being a nurse delivering compassionate patient-centred holistic care and that her opinion and experience should be valued and in turn she earned the respect of her colleagues. The emotion attached to this situation was clear in the discussion which reflected a sense of pride in being able to recognise the salient features of this clinical situation, and in being a senior nurse who could, and did, take charge.

6.2.4 Using NEWS – then it becomes gospel somehow

NEWS is a validated tool yet devised from a limited evidence base. Nurses did not appear aware of the lack of evidence base, but utilised the tool on the basis that it was an organisational requirement against which they would be measured. This study suggests that NEWS supports nurses' clinical practice, as reported by other studies (McDonnell *et al.,* 2013; Stewart *et al.,* 2014; Dalton *et al.,* 2018; Jensen *et al.,* 2019). Nurses' clinical practice and competence are measured against a threshold of the actions of a reasonable practitioner with core values aligned to the ethical principles to 'do no harm' and always include preventative safety measures

(Egan, 2014). Failure to follow or comply with guidelines is often linked to negligence (Carthey *et al.,* 2011). This concern with compliance underpinned many of the experiences of nurses in the use of NEWS.

Nursing is experiencing an increase in the use of checklists as a popular solution to patient safety concerns (Catchpole and Russ, 2015), driving task-orientated approaches (Wadmann *et al.,* 2019), potentially decreasing the personalised approach to care demonstrated by N7 in the above quote and advocated by NHS England (2019). The implications of this approach are significant for nursing. Clinicians driven by checklists and tools may be discouraged from acting in a manner that they feel is appropriate if they perceive that they may be censured for not following the procedure 'to the letter' (Levy *et al.,* 2012). This is evident in the quote presented below where the narrator emphasised how they followed the steps prescribed by NEWS exactly. Junior RNs had moved away from a questioning and critical approach to care to a rule-following behaviour. This did not apply just to NEWS but to other tools introduced into nursing.

> *I think nurses can be really bad at taking something and then it becomes gospel somehow. I feel the same happened with Waterlow [1], that everybody…it's like…it's become like a bible, and actually it's meant to be a tool. (N4)*

Following a checklist like NEWS encourages rule-following behaviour, as this study demonstrates, with less experienced narrators discussing their use of NEWS using axillary and modal verbs. Modal verbs (section 5.4.1) are used to indicate possibility, obligation, or ability and frequently used in guidance by the Nursing and Midwifery Council (NMC) in providing rules for the profession through The Code (NMC, 2018a). Whilst rule-following is vital in some aspects of nursing, for the development of the advanced beginner (Benner, 2010), in the absence of experts there is a risk that rules will take precedence over expertise. Leadership and followership in the healthcare workplace may go some way to explaining this behaviour, reflecting the traditional hierarchies associated with the medical model that are prescriptive about division of labour (Gordon *et al.,* 2015). Personality types may also offer

[1] The Waterlow Score is a pressure ulcer risk assessment/prevention policy tool (Waterlow, 2023)

understanding of nurses' behaviours, with studies confirming nurses are predominantly 'guardian' types reflected by a strong sense of duty and following of rules where they exist (Terry, 2020).

Martin *et al.* (2013) suggest a phenomenon of 'effort redirection' in the use of standardised rule-based approaches which replace critical thinking and professional subjectivity with unreflexive rule following. Standardised procedures, however, offer Junior RNs a sense of professional control and protection, reflecting a comprehensive standard of care that is less subject to risk and criticism, allowing them to 'cover their back' on the basis that professional judgement may involve risks of wrong assessment and criticism (Wadmann *et al.*, 2019). As discussed in Chapter 3, tools based on prescriptive clinical decision-making theory, such as NEWS, are aimed at supporting judgement (Bell *et al.,* 1988) using guidelines and aides which support optimality in decision-making (Brier *et al.,* 2015). In turn nurses may not feel safe to practice without them.

One narrator, a senior RN working clinically, offered a narrative that confirmed the support for the Junior RNs which was predicated on their own experience and demonstrated empathy for their position. Encouraging escalation meant demonstrating supportive behaviours was perceived to be an appropriate aspect of the senior nurses' role in NEWS.

> *So, it's better to escalate something that is not supposed to be escalated rather than not escalating something that should be escalated… So, I also escalated everything when I started, so that's why I can understand newly qualified staff if they're escalating everything because I used to be like that too. (N13)*

Whilst there is a sense of empathy with their junior colleagues, senior nurses hold a symbolic position in this scenario demonstrating supportive behaviours to their junior and less experienced colleagues. This reflects Haslam *et al'*s (2011) focus on leadership as 'we' rather than 'I' with leaders being seen as one of the team, doing things for the team by combining clinical and leadership skills and influencing others' actions. The senior nurse as a role model is discussed throughout the literature on nurse leadership as a way in which credible senior nurses may influence and develop followers, and as a result become distinguished and admired (Bahman-

Bijiari *et al.,* 2016). A number of clinical attributes can be associated with effective nurse leaders including knowledge, rapport, empathy and respect (Burgess *et al.,* 2015). Senior RNs in the study appeared to emulate these behaviours in the context of being part of the team responding to the deteriorating patient however recognised that at some point there was a need to consider when to decrease the support offered and allow their junior colleagues to accept greater. Junior RNs, their 'fledglings', needed encouragement to fly alone, therefore balance between being supportive and stifling the opportunity of the Junior RNs to become autonomous and proficient practitioners had to be achieved. This is considered with regards to a need for a learning culture for the development of clinical skills in section 6.4.

Within the hierarchy of NEWS, the Critical Care Outreach Team (CCOT) featured throughout the dialogue. Whilst the Senior RNs were reported to decline the help of the CCOT in favour of initial self-management of the patient (see Chapter 5, section 5.5.2), the Junior RNs viewed the CCOT like superheroes, flying in to use their expert skills, filling the gap in knowledge and experience of the ward staff in the management of the patient. One key feature of the findings regarding the CCOT was the respect and value that all narrators placed on the team, praising them for the service they delivered. This links to the deference to expertise that was discussed in section 5.5.1 , one of the five principles of a High Reliability Organisation. In an HRO, an expert might not necessarily be a senior leader but an individual with expert knowledge and skills of how to deal with a specific problem, in this case, the CCOT who are skilled in the management of acute patient deterioration. The sense of admiration that was evident in the Junior RNs' perception of the CCOT suggested an element of a separation between the ward nurse and the members of the CCOT, who held a superior set of knowledge and skills that the Junior RN so far could only aspire to. This was apparent in the following response from a Junior RN when questioned if she would consider being part of the CCOT.

Yes, but I would need more training and support. (N1)

This RN, who was relatively new to the U.K. clearly felt that they could only aspire to the place where they would feel confident to make decisions autonomously, associating this with both training and support to be elevated to the status of the responder to deterioration. Ironically, this support could be offered from the CCOT, who have a central role in educating nurses (NICE, 2018). The education offered by

the CCOT was not discussed with regards to experiences of RNs using NEWS, instead, the admiration was based upon them taking responsibility for the patient and taking the relevant action. In a positive and effective learning culture, nurses are supported and empowered to develop their knowledge and critical thinking skills through work-based learning opportunities but this requires both courage and commitment from learner and is recognised to be impacted directly by workloads and staff shortages (Attenborough *et al.,* 2019).

The support offered by CCOT, or equivalent teams, is widely acknowledged throughout the literature (Odell *et al.,* 2009; Kyriacos *et al*., 2011; Alam *et al.,* 2014; Stafseth *et al.,* 2016). The high value that nurses place on the CCOT for their support, specialist skills and communication/collaboration has been reported by other studies (Hyde-Wyatt and Garside, 2020; Hession and Meaney, 2022). This study did not include members of CCOT so what it meant to be viewed so positively has to remain open to speculation. Their omission caused me a little regret, reflections which I explored with my supervisory team but felt reassured by them that the size and timescale of my doctorate precluded any amendments. However, being respected by co-workers is an important element of job satisfaction and employee retention (Rajan, 2021).

The significance of passing responsibility was further confirmed by descriptions of the use of documentation to establish that the process had taken place and a senior person alerted to the patient who required further input. Such documentation may therefore be the point at which responsibility passed. When escalation failed however and the RN was unable to secure someone to review the patient, the responsibility was considered to revert to that RN and almost force them to work toward the next steps in the management of that patient.

> *All the time you feel like you're passing responsibility over to the doctor, like, 'Oh I've told the doctor, it's fine,' but then they don't come and then you sort of go round in circles, especially on a night shift as well, it's quite difficult to keep escalating to them when there's only one doctor on. So, you sort of have to think, 'Am I actually going to escalate this?' and they... Because I've got more confident as I've been qualified because when I was doing my first few shifts in my first month or two I always used to worry on night*

shifts, 'Oh this patient's blood pressure's low, their oxygen's a little bit low,' but then talking to other nurses, they'd be like, '[Name] sometimes that happens at night, they might drop a little bit, don't worry, just keep monitoring them, use your clinical judgement a bit more'. (N15)

Pressure on nurses to follow guidelines and tools led to a culture where nurses were not encouraged to think critically about the evidence base. One senior nurse reflected on her experience of being a newly qualified nurse and expressed concern about the way in which NEWS as a mandated tool had returned nursing to a prescriptive world, where critical thinking was not required but nurses were directed to take action by seniors. The implications for the profession were concerning.

It was frightening, terrifying, you were put on a ward, "There you go, they're your patients," all night, just…at the end of your first year, oh my God, now it's terrifying, isn't it, to think that. And also, you weren't encouraged to think about anything, in a way, it's like, "This is what happens," which I think, we're almost in danger of going back to that, like, you don't have to think about this, it's…(N4)

The emotion attached to this dialogue is clear with the now senior nurse reflecting vividly on her experiences of being a newly-qualified nurse 41 years previous. The fear is associated with becoming a qualified nurse responsible for your own patients. It is important to recognise that this was prior to nurses being educated to degree level, before preceptorship schemes, and also prior to patient safety orientated tools to support decision-making, such as NEWS. The suggestion that nurses were not encouraged to think refers to nurses practicing rule-following behaviour or rote-learnt behaviours taught through pedagogical approaches in nurse education prior to the 1980s (Barker, 2011). Such rule following behaviour is synonymous with beginners and competent level performers (Benner, 1984) as opposed to the skilled coping aligned to the expert nurse who is familiar with a situation, drawing on past experience, aligned to the concept of 'readiness to hand' referred to by Heidegger (1962).

This highlights a potential gap between the aspiration of nurses being a critically thinking profession and the reality, in that Junior RNs were nor emulating these behaviours. It was clear that the senior nurse was alarmed by the risk of nursing practice reverting to rules-based behaviours and nurses following NEWS rather than taking a questioning approach to patient care based on critical thinking, a fundamental element of nursing. The nurse's agitation was grounded in her anxiety that the introduction of NEWS meant that the nursing profession was at risk of slipping backwards from a problem-solving and critical thinking graduate profession to its origins as the handmaidens of doctors (Andalo, 2018). This senior nurse narrator highlighted very clearly the 'danger' of this shift to the future of the profession which has fought so hard for recognition as the largest safety critical profession in healthcare (RCN, 2021). There is, however, a marked contrast between the fear expressed here about the potential impact of NEWS on nurses' practice and the comfort that NEWS seems to provide for the less-experienced and overseas nurses, offering them a security blanket to inform their decisions (section 5.3.1).

6.3 Clinical practice culture

Vital signs are the first step in undertaking NEWS (Table 5.1) and are primarily undertaken by HCAs, as discussed in Chapter 5. The meaning of delegation and the culture surrounding vital signs monitoring to nurses is explored in this theme. The NICE CG50 guidance (2007) stipulates that the recording of physiological observations should be undertaken by staff that are both trained to do so and understand their clinical relevance. Adherence to this guidance is dubious with HCAs are who perceived to lack the knowledge around recognition of deterioration undertaking the tasks which may indicate patient deterioration.

6.3.1 The workplace culture …the ward is so busy

As discussed in section 5.3.2, a culture of 'doing the obs' was evident in both overseas-trained and U.K.-trained practice. Compared to their previous nursing experience, overseas-trained nurses perceived NEWS as an improvement discussing its superiority to using clinical judgement alone in their home countries. They also described a more instinctive way of working in their home countries without NEWS which they believed was subject to higher risks and delays to treatment and didn't take account of the range of risk factors compared to NEWS.

Yes, it's just normal obs and we had a… it's very different from here because we work almost like instinctively and there are no parameters like the NEWS score. So, sometimes there can be delays of treatment because patients are not… there are factors that are not assessed or were not identified as risk factors, so I think that's why it's a lot better here because we've got the NEWS score, which helps us identify patients who are at risk of deteriorating. (N13)

Yes, also in the Philippines, we had loads of patients. So, most of the time, their obs get taken only twice in a shift, unless they're under obs, or not stable or unwell. Most of the time it's not as often as here. (N3)

The workload of overseas-trained nurses before they came to the U.K meant that measurement of vital signs was not individualised but undertaken twice a day irrespective of the patient requirement. This was recognised to be less frequent monitoring than required in the U.K. but reflects the practice of vital sign monitoring in the U.K. prior to the implementation of NEWS. As discussed throughout this chapter, this culture of vital signs monitoring prevails despite changes introduced to drive the change, namely through NEWS. This is further supported through the findings with regards to compliance and the practice of taking vital signs.

NEWS appeared to impact directly on the way Junior RNs worked, no longer reflecting a person-centred approach relating to the individual patient but a task-orientated one where they completed the task in hand before moving to the next. NEWS had turned the interaction involved in undertaking vital signs measurement and assessing the patient into a mandated task (Foley and Dowling, 2019). This task-driven behaviour associated with using NEWS could also be explained through behavioural theories, in particular the theory of planned behaviour (Javadi *et al.*, 2013) which suggests that behaviour is driven by intention. Strong intention is led by a favourable attitude, a supportive subjective norm, and a greater perceived behavioural control. If the Junior RN believes that NEWS is a powerful tool in their assessment (favourable attitude), is expected of them from a managerial and compliance perspective (subjective norm) and is easy to undertake (perceived

behavioural control) this could lead to the task-driven behaviour reported in this study.

This task-driven behaviour also is reflected by a heavy focus on performance measures and the Junior RNs' desire to fit in and succeed (Terry *et al.*, 2017). Feltrin *et al.* (2019) reported the balancing of self-consciousness and self-embodiment that graduate nurses did to fit in with their ward culture, watching the success of behaviours of others and moulding their own practice accordingly to gain immersion and acceptance into ward culture. In the study by Feltrin *et al*. (2019) graduate nurses placed higher value on their professional and clinical skills as part of 'fitting in' which may go some way to explain the task-driven approach to completion of NEWS. Further exploration of these rule-following behaviours would likely reveal a greater understanding of nurses' actions and further contribute to an understanding of the use of NEWS.

The alternative and plausible explanation related to task-driven behaviour may be explained through difficulty in managing workload, cited as one of the most frequent stressors for nurses in their first twelve months post-qualifying (Halpin *et al.,* 2017). Newly qualified nurses are recognised as adopting various strategies to manage their workload with concerns reported over their ability to prioritise (O'Shea and Kelly, 2007); lack of competence (Hoeve *et al.,* 2018); and lack of confidence in performing multiple functions as an RN (Collard *et al.,* 2020).

> *I think that's what I'm struggling at the moment, because I am newly qualified, and like [ward] is so busy. And there's so many acutely ill patients, which I'm struggling to deal with at the moment on top of my workload…if you have an acutely ill patient, you'll tend to spend less time with other patients, and it's not fair. (N14)*

The sense of overwhelming workload associated with keeping up with NEWS as required and balancing other patients' needs is clearly a source of stress for newly qualified nurses and may lead to a sense of disillusionment and burnout (Halpin *et al.,* 2017). This is evident in the discussion with N14 above, who openly admitted they were struggling as a newly qualified nurse, using the word 'struggling' twice, firstly as a general statement, then in the context of the acutely-ill patients she was expected to look after. Chronic excessive workload in the NHS and the resulting high

levels of stress are not only the single most cited reason for staff leaving the NHS but also link to nursing errors, patient dissatisfaction, and poor quality care (Kings Fund, 2021).

It is unlikely that nursing graduates anticipated the stress and juggling of priorities associated with a career in nursing. The latest figures in the U.K. demonstrate large increases in numbers of younger nurses leaving the profession with two thirds of leavers below 45 years of age (Kings Fund, 2022). Bearing in mind that 52% of the NHS workforce is between 35 and 54 years old (NHS Employers, 2019), the impact of this is significant. One thing that maybe contributing to this is experiencing their role models (Senior RNs) demonstrating a continuous and unquestioning acceptance of assuming responsibility for a deteriorating patient. This may lead Junior Nurses to believe that excessive workload is a normal consequence of becoming a senior nurse and make them consider their future career options and the implications of progression in nursing, deciding to leave the profession entirely just a few years into their career (RCN, 2023). A fear of failure combined with a lack of work-life balancing have been identified as the main deterrents to undertaking nurse leader roles (Sherman *et al.,* 2015).

A workplace culture of overwhelming levels of busyness not only creates a risk of nurses leaving the profession but also affects how nurses use NEWS. Purling and King (2012) reported 10 out of 17 studies in their literature review identified overwhelming workload as a barrier to assessment and recognition of deterioration. This may explain why a rules-based approach (associated with completion of NEWS) to recognition of deterioration may represent the easiest course of action. This excessive workload is undoubtably impeding development of nurses' clinical judgement skills. Both staffing levels and nursing skill mix are frequently referred to in the literature around recognition and management of deterioration with regards to lack of time to observe patients as disclosed by nurses within this study, resulting in delegation (Hands *et al*., 2013; Smith and Aitken, 2015; Jeddian *et al.,* 2016). Lavoie *et al.* (2016) also suggested high workload and insufficient staffing levels put patients at risk in non-critical care areas as they reduce nurses' capacity to identify deterioration. Nursing workload is situational, impacted by several factors including staffing levels and patient acuity. The most recent published data (NHS Digital, 2022) shows a vacancy rate of 11.8% with RN staff vacancies sitting at c.47,000. This increase in RN vacancies (c.39,000) from the previous year highlights the potential for further patient safety implications.

6.3.2 A culture of compromise …I do my own obs unless I'm super busy

There were clearly a number of compromises associated with the often overwhelmingly busy workplace culture associated with using NEWS. Workload was cited by narrators in this study as one factor impacting on their need to delegate vital signs monitoring, with RNs suggesting that they did not have time to do this as frequently as it was required. Study findings suggest that RNs may delegate to their HCA colleagues despite knowing or suspecting that the delegate may not have the necessary skills and knowledge to undertake or interpret the task (see section 5.3.2). This practice appeared to be widely accepted yet presented a number of implications and consequences for the RNs. It was unclear if delegating RNs set clear parameters for the HCAs to guide them when to escalate as opposed to taking it for granted that the HCA possessed the relevant knowledge and experience to make this judgment. This suggests that some RNs are complicit in poor practice (see section 5.3.2). *The Code* (NMC, 2018a) offers clarity for RNs stating that delegation requires them to be assured of the person's scope of competence and understanding of the task, and that the RN is responsible for monitoring the outcome of the task. RNs should not delegate until they are confident that the task will be performed competently. However, none of the narrators reported checking the competency of the HCA to whom they were delegating. This might be grounded in organisational culture which has led to the expectation that certain tasks can, should, or ought to be delegated to cheaper members of the workforce.

Concern over such delegation has been highlighted within the literature with Maxwell (2018) suggesting that the impact of this was reducing the reliability of the scoring as the HCA workforce were reliant upon electronic equipment and lacked understanding in the significance of supplementary observations. Back as far as 1996, nurses expressed concerns about the increase of unqualified, cheaper staff introduced to replace the new supernumerary status of student nurses (Nicholson, 1996). One of the concerns highlighted was despite being directed to delegate to support staff, there was little guidance around the division of tasks yet accountability for assessment, planning, standards and documentation of patient care lay with the RN.

I'm not too sure, but I think they know when a patient is unwell or if their obs are not a normal reading, yeah. (N3)

I was unsure at this point if N3 had considered the competence of the HCA that was undertaking vital signs measurements on their patients, the patients that they were ultimately responsible and accountable for. Maybe the RN had assumed that the HCA had been assessed as competent for the skills and knowledge attached to the task by someone more senior and therefore no checking took place in the delegation process. However, other narrators told a similar and accepting story of the HCA not possessing the knowledge required yet was accepting of this phenomena.

…because the healthcare assistant doesn't have the same element of knowledge, and when I've challenged that knowledge, some of them still can't tell me what is normal. (N5)

Delegating, despite knowing that an HCA is unlikely to complete the task as required, places the RN potentially in breach of *The Code* (NMC, 2018a). This means that they could lose their NMC registration, their job, their earnings potential, and their self-esteem in addition to any harm that might accrue to the patient (see Chapter 5). Stovall *et al.* (2020) discuss the concept of moral injury in relation to patient safety incidents when nurses know the ethically-appropriate action but are constrained from acting accordingly. This resonates closely with potentially inappropriate delegation of monitoring to HCAs and the moral distress that could be associated with this action when the nurse knows it could have patient safety implications (Mewborn *et al.,* 2023). Poor staffing is associated with morally injurious experiences with reference to patient safety incidences and is recognised as impacting on the retention and satisfaction of the nursing workforce (Stovall *et al.,* 2020). Furthermore, recognising inappropriate delegation but feeling powerless to avoid it constitutes a morally injurious action that over time can contribute to burnout (Mewborn *et al.,* 2023). Fifteen years ago, Hogan (2006) reported similar concerns over the lack of awareness of the level of competence of the person being delegated to. Despite multiple interventions since this time to improve early recognition of deterioration, custom and practice seems to prevail. This might be due to 'blind trust' which can be as detrimental to safety culture as inadequate trust (Brittain and Carrington, 2020). This might also be in part due to workforce shortages (Leary and

Punshon, 2019) and the busyness of wards (Chan *et al.,* 2018) which could force registered nurses to adopt unwillingly practices that they could recognise could carry risk.

Yeah, but they're not good at escalating and so I do my own obs unless I'm like super busy (N9)

Vital signs monitoring is part of an overall holistic patient assessment (Massey *et al.,* 2016) and questions arise as to the safety issues surrounding the delegation of key tasks, such as vital signs monitoring, to unregistered members of the team. As suggested by the quote above, the RN may be suggesting that it was more appropriate for them to do their own vital signs rather than delegate to HCAs as they did not trust the HCA fully to do this on the basis that they may not know the competence of the HCA. Alternatively, the RN may believe that doing their own vital signs is a good opportunity for them to engage with their patient as part of a wider holistic assessment and opportunity to spend time with the patient. This hermeneutic phenomenological study focuses on nurses' use of NEWS not 'doing the obs' so eliciting what delegating vital signs monitoring to the HCA workforce means for them would require further research. Smith *et al*. (2021) reported competing beliefs about the need for RNs to delegate monitoring to HCAs, with some believing that delegation and oversight of HCAs was part of the RN role, whilst others believed that the HCA should inherently know when to enact the required behaviours. Similarly, Chua *et al.* (2019) noted inadequate direction and supervision of Enrolled Nurses when vital signs were being monitored.

However not everyone agreed that delegation was always necessary, highlighting that at times of the day when staffing was higher, the RN should assume responsibility for the vital sign assessment and use this as an opportunity to engage in interaction with the patient.

So, they [HCA] will do it to help out but actually certainly during the day the nurse-to-patient ratio is one-to-five and I think that the nurses should be doing the obs and the NEWS because it gives them a chance to talk to their patients and to go round and actually look at their patients (N7)

This statement may be contextual to the clinical area in which N7 was based; for example, an acute admissions unit is likely to attract higher levels of staff due to the acuity of patients however these areas are known to have challenges with staffing (Hegarty *et al.,* 2022). Persistent nursing shortages challenge the values and beliefs of the nursing profession when staffing is inadequate to meet patient care demands potentially compromising patient care and leading to poorer outcomes. One of the core ethical principles of nursing care is non-maleficence, the avoidance of harm (Martin, 2015). This principle, alongside that of beneficence is challenging to meet in a clinical area with low staffing, high workload and high acuity. The implications of this for Registered Nurses is significant with these ethical principles underpinning their everyday practice with a legal and ethical obligation to uphold them. Staffing inadequacies make the principle of non-maleficence harder to achieve and have potential to lead to clinical burnout which manifests in emotional exhaustion, frustration, lack of motivation and reduction in work efficacy (Mudallal *et al.,* 2017).

I've had times where the HCA hasn't escalated to me that someone's NEWS is high or that someone's obs are abnormal and then they're like, like I get there like two hours later and I was like 'Oh like their blood pressure was low or their heart rate was 140, why didn't you tell me?'(N9)

When N9 recalled this story to me, the frustration attached to the last sentence was clear, it was spoken with a sense of anger that the HCA had not shared this vital information with the RN, who ultimately would be held responsible if something had gone wrong. N9 wanted to know why this escalation had not happened but had not managed to get an answer which may be because of the HCA not understanding the importance of hypotension or fear on the part of the HCA at potentially making matters worse for themselves. Poor communication style, such as tone when expressing concerns or framing questions, can damage relationships with colleagues and negatively impact upon patient safety (Brittain and Carrington, 2020).

Delegation of vital signs monitoring to HCAs also was linked to delays in escalation where the RN does not receive critical information in a timely manner. These delays lead to missed opportunities to intervene in deterioration and compromise patient safety. Over the past ten years there has been a focus on the phenomena of 'missed care' in nursing, a term used to describe the omission of any aspect of required

patient care (Kalisch *et al.,* 2012). One study (Ball *et al.,* 2014) focused on missed care, also termed ‘care left undone’; their survey of 2917 RNs from 401 acute NHS hospital wards linked the number of patients per RN to the incidence of missed care ($p<0.001$). Patient surveillance was identified as one of the most-affected categories as a result of poor staffing levels (Ball *et al.,* 2014). Nursing workload above the assumed optimal level has been demonstrated to increase the risk for adverse events and patient mortality (Fagerstrom *et al.,* 2017).

Several studies have shown an association with graduate RNs and better patient outcomes with higher RN to patient ratios whereas support worker to RN ratios have been demonstrated to be associated with poorer outcomes (Griffiths *et al.,* 2016; Leary *et al.,* 2016). In the case of the outsourcing of vital signs monitoring to the HCA, the ‘care’ or task in hand is not being missed but delayed as a result of processes and/or workplace culture. As discussed in the previous chapter, audits are conducted to ensure that NEWS is being carried out as mandated, however delays in reporting may not be captured unless the vital signs are documented immediately and the NEWS calculated. If entered into the system, delays may be picked up through audit; if not, they remain undiscovered and lead to delayed recognition of patient deterioration.

Aitken *et al.* (2003) offered one of the first studies linking failure-to-rescue with nursing staffing and skill mix. The study highlighted a link between educational attainment and patient safety outcomes. Reporting a 10% increase in the proportion of nurses holding a bachelor’s degree associated with a 5% decrease in mortality and failure-to-rescue rates, the study strengthens the case for an all-graduate workforce. Since this publication, failure-to-rescue has been recognised as a nursing sensitive outcome measure despite many studies not including medical staffing as a variable in FTR events (Burke *et al.,* 2022). In the U.K., multiple sources have reported the impact of skill mix on mortality or adverse events such as failure to rescue in the NHS (Kane *et al.,* 2007; Needleman *et al.,* 2011; Brennan *et al.,* 2013; Leary *et al.,* 2016; Griffiths *et al.,* 2016; Griffiths *et al.,* 2018) suggesting a complex, yet interdependent relationship (Punshon *et al*., 2019) and questioning the delegation of some aspects of care to the unregistered nursing workforce. The impact of the recent introduction of the nursing associate role (NMC, 2018c) on failure to rescue is as yet uncertain nor the extent to which it bridges the gap between the unregulated care assistant workforce and the registered nursing workforce. (HEE, 2015). The NHS Long Term workforce plan (NHS England, 2023)

makes a commitment to increasing the number of NAs from 4,600 to 64,000 by 2036/37, highlighting the increasing importance of understanding the impact of the role on patient safety.

Whilst the impact of staffing and nurse-patient ratios upon patient safety is well documented, the impact on nurses themselves of having to make daily compromises in the care they provide has received less attention. As St-Pierre *et al*., (2011) identify, failure to detect patient deterioration in such circumstances can "produce feelings of impotence in workers leading them to turn in on themselves and disengage from their work".

And I remember going home that morning, I was, like, "I've got to leave this, I cannot…this is driving me bananas…… This is stupid. People are just being ridiculous" (N4)

In the above quote N4 discussed her frustrations with her work environment that led her to leave her workplace and move to a different speciality before later returning to acute hospital care again. Her experience is synonymous with the concept of moral injury which has been associated with the return of task orientated approaches to care (Mewborn *et al.,*2023) diminishing nurse satisfaction, as a result of inability to undertake full assessment, think critically and employ nurse-led interventions. This can lead to nursing burnout defined by emotional exhaustion, cynicism, detachment from the job and a sense of hopelessness or lack or accomplishment (Hensen, 2020). Poor work environments are a primary cause for nursing burnout with higher levels of nurse burnout in hospital setting associated with higher patient mortality failure to rescue with life threatening consequences for patients (Schlak *et al.,* 2021). In this particular instance N4 described a situation where the environment on a particular night shift meant she needed to check up on other nursing staff actions to ensure a newly admitted patient had been properly assessed. This filled her with anger as it increased the stress on her role, with emotional exhaustion being clear through the way she described the situation and the ineffectiveness that her work colleague demonstrated. This sense of burnout was also seen by N9 on page 214 when the RN had not received timely information from her HCA colleague on deranged vital signs.

6.4 NEWS and clinical judgement

The third objective of this study was to 'develop a deeper understanding of the interaction between NEWS and nurses' clinical judgement and decision-making'. This section contributes to this objective by application of Tanner's (2006) stages of clinical judgement (discussed in Chapter 3) to the process of using NEWS. Through application of the hermeneutic spiral (Chapter 4) this section will explore what NEWS means for nurses' development of clinical judgement. This section will also explore the extent to which HCAs are perceived to engage with the steps of clinical judgement according to Tanner's (2006) as presented in Table 3.2 in Chapter 3. The extent to which HCAs apply clinical judgement in the use of NEWS in this study is unclear in the absence of HCAs in the sample. The role of the HCA as presented within the findings of this study reflects the perceptions and lived experiences of the RN workforce.

6.4.1 Think about what is actually wrong with this person.

The perceptions of nurses around clinical judgement differed through the experiences discussed. Whilst the use of NEWS was found in this study to offer RNs alerts and reminders to ensure tasks were completed within a given timeframe to ensure compliance, it appeared to be driving RNs away from personalised approaches advocated in the NHS universal personalised care model (NHS England, 2019).

> *There is something missing between the moment that you discover and the moment that you escalate, so the gap between those, what should I do between that moment that I knew that the NEWS is five and then I escalate it?(N8)*

Senior RNs postulated that rule-following behaviour driven by NEWS was detrimental to the practice of nursing which required the process of critical thinking and clinical judgement, piecing together the presentation and the history of the patient to generate a diagnosis and relevant action. This perception was accompanied by concern for the future direction of the nursing profession and the skills of nurses.

And I was working with a lovely nurse the other day, and she wanted to ring Outreach about someone that was…and she said, 'Oh, that's what you have to do,' and I was, like, 'Well, do we?' I mean, yes, we do, but…and she was very skilled as well, she was very…clinically, I thought she was really on the ball, but she was, like, 'Oh, don't we have to ring Outreach?' I said, 'No, I don't think so, we know why the patient's like that, we know why they're triggering that, and we are managing it, they're on the treatment, they're on the right antibiotics, they're on oxygen, the humidifiers, they're on those, that is the treatment. What else could Outreach do that we can't do? They could take some ABGs, I suppose, really, do we think that's necessary?'… It's kind of like people are not taking that next step, they're just, it's like, 'Oh, they've got a six, got to call, it says I've got to call Outreach; therefore I'm going to call Outreach," rather than, "Okay, what can I do? What can I do now? What do I think's wrong with them?' (N4)

This senior nurse reported both surprise and disappointment in her experience with a colleague who she describes as both 'skilled' and 'on the ball'. Despite this description of her colleague, she had not demonstrated the expected skills of clinical judgement to further the consideration of what the patient needed after her assessment, instead had decided to escalate to the Outreach team irrespective of the circumstances surrounding the scenario. What is unclear is if this represents a process of automation to escalate based on NEWS, or whether the nurse does not have the skills required to think about the situation and taken relevant action, such as further assessment and interpretation before escalating. The Senior RN then described her questioning approach to the nurse in question to encourage her to undertake critical thinking about what steps she could take in the meantime. The same senior nurse expressed concerns about the implications of such behaviour upon the nursing profession.

And we're doing ourselves out of a job if we don't start to think about what is actually wrong with this person. We should have the skills…I mean, obviously we're not…we might not necessarily know and might not necessarily get it right, but we should be

thinking, 'Okay, this person had surgery three days ago, they've been fine and suddenly they're not, what could it be?'' (N4)

The language used in the above quote demonstrates a personal concern for the future of the nursing profession suggesting that unless nurses demonstrate their ability to undertake clinical judgement and work autonomously then they may be replaceable by less qualified workers. Nurse are recognised for the pride that they take in their profession, upholding high standards of practice, however this nurse suggests there is an element of care erosion (Timmins and de Vries 2014), a decline in the standards of care as a result of nurses failing to take action based upon their clinical judgment. "What could I do about it?" is a question that nurses should be asking themselves, integral to being a professional nurse and delivering the expected level of care that patient may expect, however this narrator is insinuating that NEWS is blocking this required analytical behaviour, suggesting it "stops thinking".

why is this patient's resp rate 30 and what else is going on and how can I get that? How can I sort that out? But I think the staff nurses think that they've passed that on so they don't need to think about it (N7)

As a nurse educator, the concerns expressed by these senior nurses about the lack of clinical reasoning did not come as a surprise to me, but confirmed and expanded my own horizon, fusing it with those of the senior nurses. As discussed in Chapter 1 (Section 1.5) I had experienced RNs attending my deteriorating patient educational module lacking a questioning approach to the findings to their patient assessment in the same way that the senior nurses reported their clinical colleagues responded to NEWS. My own horizon revealed that NEWS had limited their application of anatomy and physiology which was essential to consider their interpretation of their findings, which became the starting point for their developmental journey when enrolling on a deteriorating patient module.

The experiences shared in this study and the hermeneutic interpretation of those revealed a difference in the application of clinical judgement between Junior and Senior RNs in relation to their use of NEWS (Figure 6.1). To enable greater understanding of the use of clinical judgement, Tanner's model of clinical judgement

(Tanner, 2006) was applied to the hermeneutic interpretation. The extent to which the junior and senior RNs undertook the four stages of clinical judgement enhanced the meaning of using NEWS to nurses. This revealed that Junior RNs demonstrated a heavier reliance on NEWS, exercising limited clinical judgement beyond the noticing stage. Senior RNs, however, demonstrated minimal reliance on NEWS completing all four stages of clinical judgement (noticing; interpretation; responding; reflecting) with a principal focus upon interpreting and responding, supporting the presence of expert skills (Benner, 1982). Both approaches are explored further, and the model applied to the steps of the use of NEWS that were revealed in section 5.2. Figure 6.1 shows the stages of clinical judgement applied to the process of using NEWS.

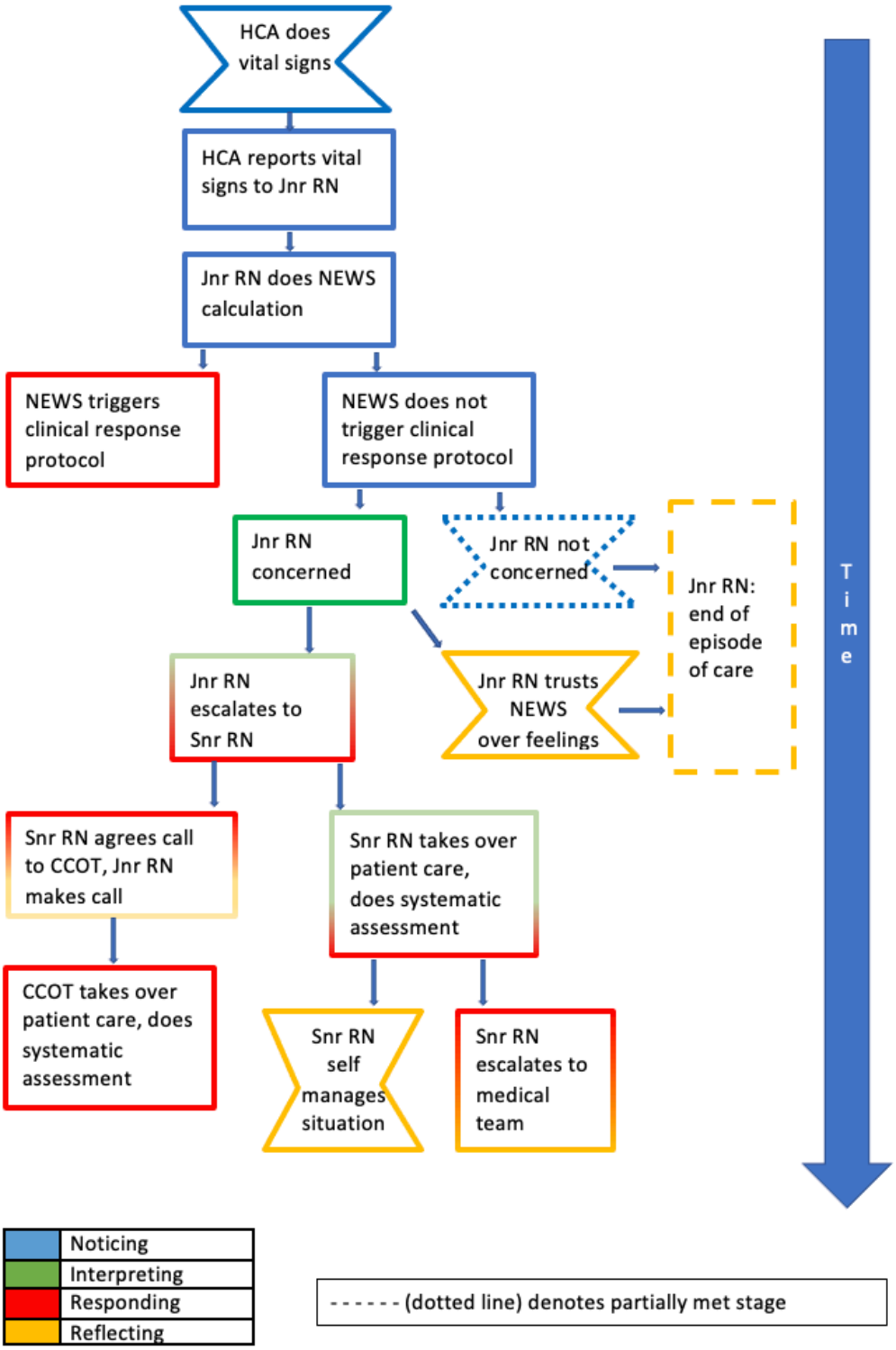


Figure 6.1 NEWS process and clinical judgement stages

To extend this understanding further the stages of clinical judgement are applied to firstly the role of the Junior RN (section 6.4.2 and 6.4.3), followed by the role of the Senior RN (section 6.4.4) in the process of using NEWS.

6.4.2 The Junior RN stages of clinical judgement - NEWS triggers

NEWS sits within the noticing stage of Tanner's model of clinical judgement (2006) with minimal suggestion of interpretation required by the tool. The assessment undertaken by Junior RNs appears centred around NEWS as demonstrated in Figure 6.2.

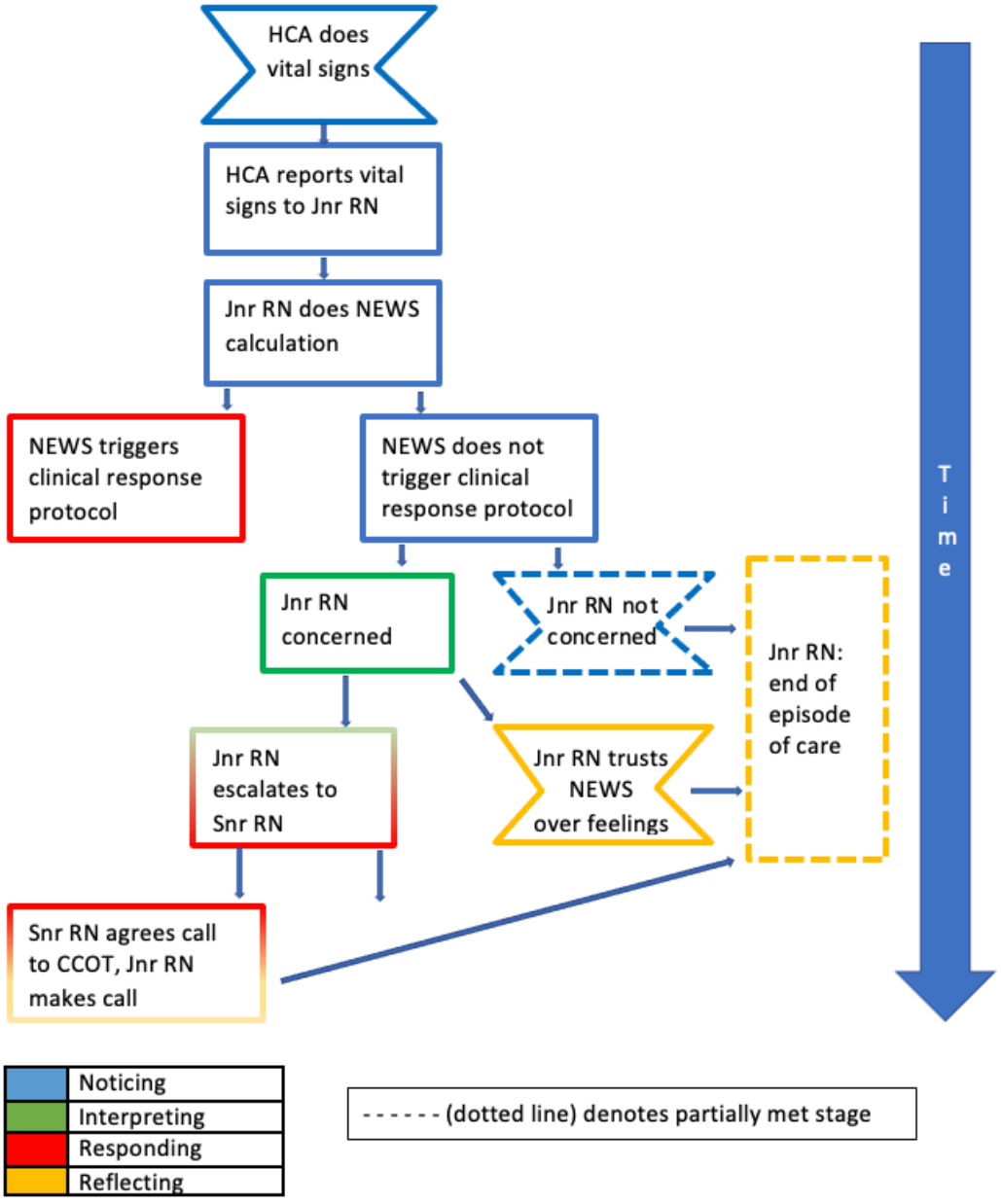


Figure 6.2 Junior RN stages of clinical judgement

As demonstrated in Figure 6.1, the HCA monitors vital signs (noticing), then responds by passing results onto the Junior RN. Whilst this may be considered as

responding, this is unlikely to demonstrate any clinical judgement skills but reflects a process of automation and cultural processes discussed earlier (section 6.2.2) related to the completion of 'obs' rounds as a task-based approach to nursing care. When the Junior RN receives the vital signs data from the HCA, they calculate the NEWS score. This sits within the noticing stage as it does not require interpretation until the NEWS calculation is complete. This stage is focused on the task of calculating the score and does not necessarily indicate that the Junior RN at the patient bedside is making any observation of the patient following the vital signs. At this stage, the NEWS will trigger, or not, and the next action will be dependent upon this trigger and the clinical response protocol.

When NEWS triggers, the Junior RN is required to follow the clinical response protocol and act according to the score. This could be likened to a fire alarm; the Junior RN actions the alarm by escalating to the Senior RN. In the case of a fire alarm, all people are told to exit the situation apart from (sometimes) the person that found the fire and raised the alarm. This person may be expected to utilise their training and tackle the fire if they can safely, using the tools (extinguishers) and knowledge they have.

> *it's your prerogative to look for someone who can help you. If the charge nurse is busy, you can always ask your sister or the ward manager or if the doctor is there, you can always approach the doctor but you will always find somebody. (N2)*

However, the findings of this study suggest that the Junior RN who 'notices' or 'finds' the patient, escalates to raise the alarm but does not use their tools and knowledge to provide an immediate response, instead waits for the Senior RN to take immediate action, as discussed in section 5.5.1. Following the clinical response protocol in this manner demonstrates interpretation of the protocol rather than a process of critical thinking as described by Tanner (2006), where the RN would process the information they have noticed, analysing the vital signs, trends, and other signs of deterioration to make sense of the situation. NEWS was not intended to be used in this way but as a tool to help decision-making, not replace clinical judgement (RCP, 2017). This behaviour is suggestive of a culture of passivity (Institute of Medicine, 2000) where nurses are not applying the knowledge and skills that they should possess but lacking the initiative to take action as expected. 'To err

is human' reported a culture where errors were accepted without active response to challenge them. Passivity can be linked to compassion fatigue and sustained stress (Matey, 2016), however in the case of using NEWS this was not clear in this study but may be assumed that the inaction of the junior nurses is as a result of following the NEWS protocol alone. As discussed in section 6.4.1 this aligns to the concerns expressed by the senior nursing team that their junior colleagues do not take the expected action but escalate and wait for help.

And, then that is it! You are not engaged anymore with what would happen. If the patient deteriorates, at least the doctors are aware. So, I am not really responsible for that, anymore. (N8)

The step of escalation could reflect the response stage yet requires minimal clinical skills, does not include systematic assessment nor the application of relevant anatomy and physiology expected at this stage (see table 3.2). To reach the response stage of the model requires the Junior RN to undertake the interpretation stage first. At this stage the Senior RN takes responsibility for the next step, either instructing the Junior RN to call the CCOT or taking over care/further assessment of the patient themselves. This finding demonstrates that NEWS sits within the noticing stage of clinical judgement and does not require the Junior RN to take any further stages when NEWS triggers, as reported by the Senior RNs in section 6.4.1. The Junior RNs provided little evidence of moving beyond this to the interpretation phase within their experiences.

The findings also suggest that in some circumstances the Junior RN may not complete the whole stage of noticing to its full extent. As discussed in Chapter 3 (Table 3.2), noticing includes vital signs monitoring plus calculation of NEWS; observation of soft signs; and patient reports of changes. Escalating, without observing the patient further would suggest that the noticing stage is only partially completed. This suggests that there may be a developmental continuum with some Junior RNs that do the stage of noticing well, whilst others are more limited. Some Junior RNs appear to enter the interpretation stage, whilst others do not, a possible consequence of the culture in which they work. If located in a clinical area emulating a culture of acceptance of excessive workload and deficits in the presence of an expected culture of learning, junior RNs may be limited in their ability to consider interpretation. The consequence of NEWS being solely reliant on vital sign

monitoring means that it is not essential that the RN undertakes a systematic assessment of the patient but instead move directly to escalation based upon the score alone.

Tanner (2006) identifies that less experienced nurses often lack the knowledge and experience to fully undertake the stage of noticing as they do not have a frame of reference. As per section 6.2.1 some Junior RN narrators perceived that they had not developed their knowledge in relation to recognising patient deterioration, in part because their pre-registration nurse education had relied heavily on simulation which was criticised for not being realistic to clinical practice. Noticing requires nurses to be able to draw upon their knowledge, experience and learning to predict a patient's response (Martin *et al.,* 2016). In the absence of experience and knowledge, NEWS may offer a frame of reference. Rather than being a tool to support clinical decision-making, NEWS aids noticing. Junior RNs' assessment of patients was primarily focused on measurement and recording of NEWS in this study; a mechanistic task frequently delegated to HCAs, as discussed also by McGaughey *et al.* (2017).

> *…we've swung that way, where we've got clearly highly intelligent people using…it's like everything, there's a tool for everything, but they must be taken in as a whole. (N4)*

This very senior nurse is clearly questioning the need for tools in nurses that have degrees, and the drive for an all-graduate profession which encourages nurses to be critical thinkers with decision-making skills they need to make high-level judgements. Standardisation and rule following oppose Benner's description of expert performance (Benner, 1984) and as a result present a challenge to the expert nurse by discouraging critical thinking and reasoning, and impact on junior RN progression from competence to proficiency to expert (Day, 2009). Whilst rule-following behaviour is a recognised safety net for Junior RNs, a protocol-driven approach limits their journey from novice to expert and the associated development of clinical judgement skills. Clinical judgement requires a sound knowledge base, critical thinking, and reasoning to develop interpretation skills on which a good decision is made (Van Graan *et al.,* 2016). Rule-following has a place but taking an unquestioning approach to patient care and placing blind trust in NEWS scores does not encourage the development of clinical judgement nor prevent the non-triggering but deteriorating patient from potential harm.

The notion that Junior RNs demonstrate limited clinical judgment is supported by literature reporting that junior staff lack the ability and experience to recognise early deterioration (Shearer *et al.,* 2012; Massey *et al.,* 2014; Johnston *et al.,* 2015; McGaughey *et al.,* 2017) with EWS acting as a replacement for clinical judgement (Purling and King, 2012; McDonnell *et al.,* 2013; Brier *et al.,* 2015; Large and Aldridge, 2018). Junior RNs in this study did not discuss the process of undertaking further objective systematic assessments but focused on vital signs only. This aligns with cognitive bias suggested by Kruger and Dunning (1999) to be when people with low levels of expertise have little insight into their incompetence in relation to a task. The rigid application of trigger criteria with limited experience, knowledge and skills leading to automatic escalation, no doubt increases the workload of the responders but also brings into question the efficacy of the to*ol* in early escalation *(*Ludikhuize *et al., 2011;* Mackintosh *et al., 2012;* Johnston *et al.,* 2015; McGaughey *et al.,* 2017).

As an experienced RN with over 30 years in my profession, I felt a sense of grief here similar to that expressed by N4, that this profession of which I am so proud, which fought so hard to become an all-graduate profession because we knew this would make a positive difference to the patients we care for, is at risk of slipping backwards. Junior nurses are not developing the levels of clinical judgement that should be commensurate with being registered nurses and NEWS has contributed to this, posing as a barrier to the development of vital clinical judgement skills.

6.4.3 The Junior RN stages of clinical judgement - false negatives

..so you can carry on having a NEWS of or a NEWS deteriorating can't you so it might start at zero and then go to two and then go to three, you can have that but they don't escalate it until it gets to five which is what the trust policy says (N7)

The perspective above offered by a senior nurse suggests that when a patient does not trigger a score on NEWS or reaches a low score and slowly progresses up to the score for escalation, they may not be recognised as deteriorating. This is shown in Figure 6.2 which refers to a negative trigger from NEWS which does not need to be escalated. At this point the Junior RN may not be concerned however, bearing in mind the need for clinical judgement beyond NEWS, a Senior RN might have a

different perspective on that patient. This is a potential risk to patient safety but also has implications for the way in which nurses use NEWS. Whilst a triggering score encouraged Junior RNs in this study to seek help, a non-triggering score was sometimes met with uncertainty (section 5.4.2). In the situation where NEWS did not trigger, some Junior RNs recognised that they needed to make a clinical decision using their clinical judgement. This confirms that some Junior RNs are in fact demonstrating some skills of interpretation in the presence of a negative NEWS, depending on whether they trusted NEWS or not. Junior RNs in the study discussed noticing confusion and changes to behaviour at the noticing stage which flagged to them that there may be a problem, which may or may not be congruent with the score. This may indicate a conflict between NEWS and their clinical judgement and the decision that they make as a result is influenced by many factors such as trust in NEWS; confidence; intuition; competence; stress; teamwork; culture, as discussed below.

A false negative NEWS, an instance where NEWS does not trigger despite the patient showing signs of deterioration has been recognised in other studies (Tierney *et al.,* 2015). A struggle between the NEWS protocol and clinical judgement to achieve best outcomes is supported by other sources (Foley and Dowling, 2019) with the concept of 'knowing the patient' and use of intuition influencing the decision made (section 6.4.1). Knowing the patient and intuition are both elements of nurse observation not collected through NEWS yet are recognised as contributing to both noticing and interpretating stages of Tanner's model (2006). Knowing the patient featured highly in recognition of deterioration and was characterised by RNs in this study by recognising changes in the patient based upon their previous interactions and recalling the patient's behaviour, therefore being able to compare the patient's norm to their current state. There was a sense that whilst nurses could list a number of soft signs of deterioration that sat outside of NEWS, there was difficulty in quantifying this or elaborating on what certain symptoms might indicate.

> *If their alertness is a little bit different, if they're less responsive or if they're quite agitated or if they would, if they are little bit drowsier, compared to, say, yesterday... I want to say this, he's not normally himself, he's quite aggressive or agitated and so there might be something wrong with the, but it cannot be picked up yet... (N3)*

Maybe they are just quieter or not very alert. For example, she is normally bubbly but then doesn't talk very much anymore or she has been very sleepy all day. (N1)

The quotes above from Junior RNs suggest that they already possess or are developing skills of pattern recognition which align to the noticing stage of clinical judgement. Both suggest that the RNs have noticed something different in the patient, based on their existing knowledge of the patient, which is core to clinical judgement (Tanner, 2006) and recognised as an important factor in patient assessment that sits outside of NEWS (Chua *et al.,* 2019). This familiarity with the patient can lead to pattern recognition (Cioffi and Markham, 1997) linked to the interpretation stage which may help the nurses to make sense of the task (Benner and Tanner, 1987). Conversely, pattern recognition relies on memory and therefore not always reliable when used as a decision-making tool (Banning, 2007).

Pattern recognition is often associated with intuition, both Junior and Senior RNs described feelings of intuition, a sixth sense or gut instinct when the NEWS did not trigger concern, but the RN felt concerned over a patient. Whilst RNs suggested, at times, they felt that this was a 'sense' that something was not right, it was primarily triggered by a noticeable change in the patient's physical status rather than a completely unsubstantiated feeling. The instinctive feelings discussed were observations that sat outside of the recordings undertaken as part of NEWS, such as pallor or communication. They were therefore not contributing to the score and carried no weight but still gave nurses cause for concern.

We just say like, 'They don't look right'. I think sometimes it's your gut feeling. So, yeah…Because previously she was like chatting to me the day before, and the next day not so much, so it's a change in behaviour. (N14)

Well, like if they look unwell or like I don't know, like their breathing's different or like so you could just tell by looking at someone or if they say they're not feeling well. (N9)

As a result of these 'gut' feelings, narrators discussed strategies for extending their assessment. A more in-depth assessment was the next step in the assessment process for senior RNs who would undertake this irrespective of the NEWS triggering. Narrators who discussed furthering their assessment included consideration of the background of the patient, a search for trends of deterioration and baseline vital signs. They described familiarising themselves with this information before making a judgement on whether to progress with escalation or whether to take immediate action themselves.

> *I will go through the NEWS and check the previous ones and then I will go and assess the patient myself and after that I will escalate either to the doctor that is looking after the patient or, if there is need, to the Outreach as well. That's what I normally do. (N12)*

At this stage, an experienced nurse may explore some of the noticeable changes outside of NEWS by undertaking further assessment as per the noticing and interpreting stages (see section 5.5.1), but this was not common practice for Junior RNs who would pass their concerns on rather than move fully to the interpretation stage which required enhanced skills. This is likely due to a lack the concept of 'rollercoaster confidence' experienced by a NQN, described as '– a fluctuating and fragile commodity which continues until greater experience has come and NQN transition shock has passed (Halpin *et al.*, 2017).

In contrast, at this same stage, the Junior RNs and overseas-trained nurses reported feeling conflicted regarding whether or not to divert from protocol and follow their intuition, thereby disregarding a normal NEWS in case the scoring was a false negative.

> *But that's with my own decision. So I'd have to see the pure history of the patient first, you know, and ask my colleagues, "Do we need to worry?" or something like that. (N16)*

Narrator 16 is expressing her feelings of worry as a nurse, yet clearly is unsure what to do with this feeling, suggesting she asks her colleagues as opposed to

undertaking the process of escalation based upon worry alone. Where a supportive workplace culture exists, Junior RNs should feel confident and empowered to share their concerns or escalate them as they feel necessary, yet in this instance the nurse questions the value of her feelings. The value of nursing worry is evident in the research undertaken by Romero-Brufau *et al.* (2019) which evaluated the accuracy of nurses' worry scores, which showed that accuracy of worry increased with experience and development of intuition with NQNs demonstrating lower accuracy (68% vs 79%, p=0.04) compared to those with more than one year experience.

If nurse worry is not taken seriously, a Junior RN may place their own fears and insecurities before the safety of the patient, leading to an adverse event as a result. A negative or bullying workplace culture is a widely recognised issue within the nursing profession, with associated behaviours such as criticism, belittlement or unreasonable expectations most commonly portrayed by supervisors or colleagues (Homayuni *et al.,* 2021). Such behaviours may impact the nurses' ability to manage tasks in the workplace, process and retrieve information. This maybe further impacted by high workload, which is correlated with higher levels of workplace bullying (An and Kang, 2016). Other studies have highlighted NQNs experiencing feelings of panic, anxiety and inadequacy combined with a fear of being judged if they asked for help too soon in an acute event as it would make them look incompetent (Della Ratta, 2016; Murray *et al.,* 2019). This delay in following up their concerns may also relate to imposter syndrome, associated with feelings of self-doubt and insecurity compromising the performance and competence of the new registrant (Christensen *et al.,* 2016). Reluctance to escalate is reflected in the literature with causes cited such as the presence of a culture of blame (Mackintosh *et al*., 2012; Chua *et al*., 2013); fear of reprimand (Purling and King, 2012: McGaughey *et al*., 2017) and fear of embarrassment (Odell *et al.,* 2009; Liaw *et al.,* 2011; Large and Aldridge, 2018). The importance of team psychological safety (Martland *et al.,* 2016) reflected by a compassionate and inclusive environment is highlighted as one of the key features for a patient safety culture (NHS England, 2019).

Tanner (2006) recognises the ability of experienced nurses to be able to respond intuitively in familiar situations, yet the Junior RN may struggle to easily recognise the knowledge they need to apply to certain situations. Intuition is discussed throughout the literature with regards to early recognition of deterioration (Endacott and Donohue, 2009; Massey *et al.,* 2014; Dalton *et al.,* 2018; Foley and Dowling,

2019). Odell *et al.* (2009) suggested that intuition is central to deterioration detection and often the reason for referral to the CCOT when the EWS does not trigger (Pattison and Eastham, 2012). The phenomenon of the deteriorating patient represents a high-stake decision, one of complexity and with high levels of uncertainty, which may be one of the greatest challenges for newly qualified nurses in the stage of transition shock (Duchscher, 2009). Consequently, false negative NEWS scores, whether the junior nurse recognised at the time that they might be a false negative or later when it became clear as a result of patient deterioration that it had been a false negative, can result in emotional turmoil that will only add to feelings of transition shock and potential moral injury at being 'betrayed' (Mewborn *et al.,* 2023) by NEWS.

Throughout my career in nursing there are many times that I have trusted my gut feeling about a situation where something was not right. This internal conflict, which I recognise is a moral stressor can be resolved by having confidence in your actions, underpinned by evidence-based practice but more importantly by a supportive workplace culture where I felt empowered to make decisions. This makes me, as a nurse question how risk averse nursing has become with nurses worrying about getting something wrong, displaying risk avoidance behaviours and attitudes as a result of restrictive organisational policies.

6.4.4 Lack of learning culture for Junior RNs

With recognition that knowledge and skills develop with experience (Benner, 1982; Cioffi *et al.,* 2006) NQNs can lack the knowledge and experience to understand the occurrence and the processes they need to take to manage deterioration (Towner *et al.,* 2022). It is unsurprising that newly qualified and less experienced nurses are heavily reliant on NEWS in the absence of developed clinical judgement skills and lack of exposure to complex clinical situations (King and Clark, 2002; Burger *et al.,* 2010).

> *It is difficult when you've got an unwell patient but then you've still got five others to look after so you have to really make that balance. The Outreach are there, they can be with that patient for now and then I can just do what else I need to do. (N15)*

In responding to escalation, Senior RNs or the CCOT take over the care of the patients rather than work alongside the escalating Junior RNs, thus allowing the Junior RN to step aside and return to the other patients under their care. Whilst this behaviour is most likely as a result of a culture where an excessive workload is accepted, the impact upon the missed learning opportunities for Junior RNs cannot be under-estimated. A Junior RNs who is already dealing with a full workload is less likely to consider opportunities to develop themselves by working with their senior colleagues but more likely at this point to allow someone else to take responsibility and remove the problem.

….but I prefer to stay, and like to see what they want to, yeah, but normally I leave them (N14)

This was a source of frustration for both the Junior RN who recognised they wanted to stay and learn yet were conflicted needing to focus on other patients whilst they were assured that the deteriorating patient was in safe hands. Managing multiple role demands, a recognised stressor for newly qualified nurses (Halpin *et al.,* 2017) appeared to be limiting opportunities for learning. The sense of fulfilment that may be created as a result of new learning and developing new skills is missed but this study suggests that Junior RNs are just coping on a day to day basis, fire-fighting to get through their shift. Bearing in mind the vulnerability of newly qualified nurses in the transition phase, this working practice may impact on their job embeddedness and feeling that they fit in the work environment, when they are constantly reliant on others (Ho *et al.,* 2021).

This lack of clinical judgment exposure has significant implications for Junior RNs who are not developing their skills through experiential learning. Experience of acute situations post-registration is cited as one of the most important factors that influence novice nurse's ability to notice, interpret and respond in acute situations (Sterner *et al.,* 2021). This is frightening when considering that the findings of this study suggest that Junior RNs are not gaining this experience and therefore not gaining confidence and trust in their own ability.

Exploring the meaning of this for nurses may lead to two conclusions. The first of these is that by taking over the care of the patient alone, the Senior RN could exercise timely care delivery to the patient, therefore freeing the junior RN to focus

on the other patients when they had too much to focus on. One other interpretation may be linked to their ability to exercise their clinical judgement, an expert skill set delivering care aligned to their professional identity as a nurse. This sense of mission linked to professional identity, value and sense of duty was seen in the COVID-19 pandemic with senior nurses enlisted to help in clinical areas, reporting a strengthening of professional motivation and belonging (De Benedictus *et al.,* 2022).

The impact of the lack of clinical judgement skills in the future nursing workforce needs to be fully considered in the context of the current workforce challenges. At a point in the future, Senior RNs with well-developed clinical judgement, reasoning, and decision-making skills will retire, potentially leaving a skills gap in the workforce as a result. Nursing is facing a global workforce challenge, with the potential loss of well- developed and advanced skills with an ageing workforce (Royal College of Nursing, 2021). In the U.K., one in five nurses on the NMC register are aged 56 years or above and may therefore retire in the next 5-10 years. In addition, with changes to the NHS pension, an increasing number of nurses with special class status are retiring to receive their pension at 55 years (Cutler *et al.,* 2021). This will lead to younger nurses taking the helm as leaders, with less clinical experience and fewer senior colleagues to support their development. The implications of this are yet to be seen or reported upon.

This challenge has been exacerbated by the COVID-19 pandemic with predictions of a 5.9 million nurse shortage globally (Buchan *et al.,* 2020) with half of nurses reported to be thinking about quitting their jobs following the pandemic. In surveying RNs that left the NMC register between December 2020 and January 2021, whilst 51.6 % of respondents left to retire, 22.7% of respondents left due to too much pressure and 18.1% due to a negative workplace culture, both of which are significant factors for healthcare organisations to consider in the retention of their workforce (NMC, 2020). It should, however, be noted that whilst this is the most recent statistical data on why nurses are leaving the profession, it also represented a time when the workforce was under significant pressure with the impact of the COVID-19 pandemic. The emergent skills gap will need addressing, to build a workforce of nurses that can complete all stages of clinical judgement, using NEWS to highlight deterioration and guide clinical decisions based upon a platform of developed skills and knowledge.

As a nurse that has focused on the learning and development of my profession for many years, the lack of learning culture and exposure to learning for junior RNs is disappointing from two perspectives. Firstly, the position that nursing finds itself in with chronic shortages and a 'leaky bucket' with a focus from the government on recruitment rather than retention (Lintern, 2020). Without developing our younger nurses, the future of the profession is uncertain. In addition, I question as to why Junior RNs are accepting of the lack of learning opportunities to develop within their role. This could be because they have accepted this as normal practice or alternatively they are unaware of their limited clinical judgement skills.

6.4.5 Okay, what can I do? What do I think's wrong with them?

Senior RNs in this study reported low reliance on the NEWS tool, favouring their own clinical judgement to drive their clinical decision-making (see section 5.4.3). The Senior RNs had been working in clinical practice prior to the implementation of NEWS and appeared to utilise NEWS to supplement their clinical judgement rather than replace it.

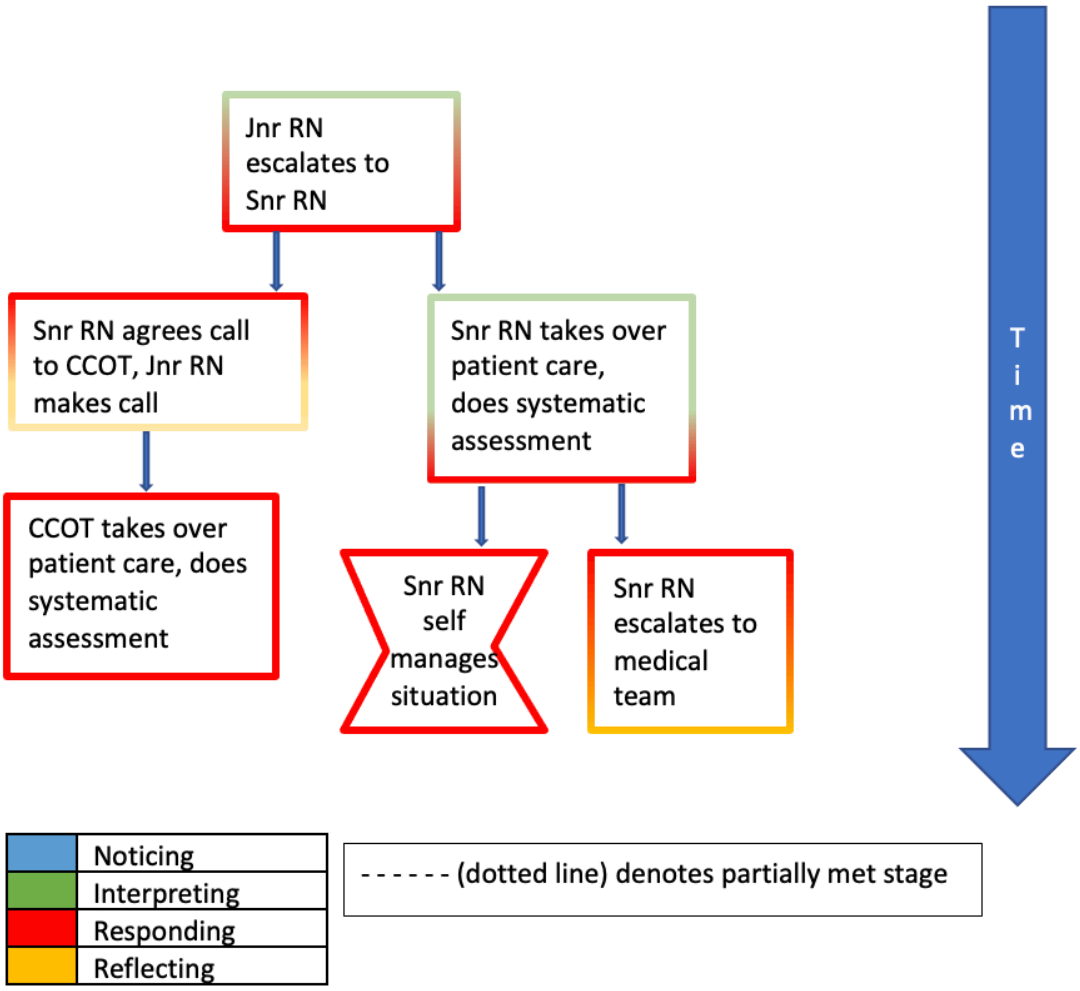


Figure 6.3 Senior nurse - stages of clinical judgement

Senior RNs appeared to meet all four stages of clinical judgement as demonstrated by Figure 6.3. Whilst Senior RNs did not routinely measure and record vital signs, they completed the stage of noticing once in receipt of an escalation from a junior colleague by attending to the patient for further assessment. They appeared to draw on their clinical intuition or tacit knowledge at the noticing stage, moving onto interpretation by initiating the process of clinical reasoning to consider assessment, patient trends and experience to recognise changes to a patient's condition (Benner, 2010). Senior RNs discussed the use of supplemental assessment tools such as ABCDE (U.K. Resuscitation Council, 2021) suggesting their clinical ability to conduct a more in-depth assessment, collate cues and explore further patient data which is suggestive of Tanners' stage of interpretation (Tanner, 2006).

And actually, the Outreach should be, actually, if you've done all the really, like, first and second possibly steps, then. "Actually, and they've not improved, then I need to get some further help.(N4)

On completion of the interpreting stage, the Senior RNs in this study reported actions that reflected the responding stage of clinical judgement as per the quote above (see section 6.4.1). This stage included the initiation and evaluation of any interventions that sat within the boundaries of their role, such as application of oxygen, positioning the patient, and administration of intravenous fluid. Based on hermeneutic reflective engagement with the narratives as described in Chapter 4, these nurses appeared to demonstrate the level of confidence and empowerment required for this stage, with a sense of pride and self-esteem in their ability to manage this situation without calling for help unless their actions did not improve the patient condition. Self-esteem has been identified as improving nursing performance (Wati *et al.,* 2022). The confidence that was associated with their ability was evident through their responses to probing and questioning within the dialogue and those responses which were aligned with those of the researcher as an expert in this field. Through the dialogue with the senior nurses, their expert knowledge of clinical reasoning and patient management was evident, supporting their lesser reliance on NEWS and their position as a senior clinical nurse and expert. The final stage of clinical judgement, reflection, was only evidenced in the interviews by experienced nurses who with confidence could discuss elements of thorough critical evaluation of the interventions. This is reflective of the expert end of the novice-to-expert trajectory (Benner, 2010) and distinguishes experts from novices through the process of critical thinking.

As an experienced nurse, I was not surprised that the Senior RNs had low reliance on the NEWS tool, reflecting my initial thoughts when NEWS was introduced which was questioning of a tool needed for decision-making, an integral aspect of the nursing profession. Being confident in my knowledge and skills in clinical practice would lead me to trust my clinical judgement over a tool. However in a similar way to the Senior RNs in this study, I could see the benefit of NEWS to support junior colleagues. Educating RNs had opened my eyes to the need for something to support nurses in decision-making, but also to empower them to escalate with confidence. The finding that Senior RNs would demonstrate all 4 stages of clinical judgement therefore was expected, they are perceived as experts and confident to

respond to the needs of the patient. The impact of the experience of the Senior RNs was clear throughout the discussions during this study, however just heightened my concern around the dependence of nurses on senior colleagues and the implications for the future nurses and their ability to reflect the same level of confidence in themselves in the future.

6.5 NEWS…understanding the impact on nursing

The use of NEWS is well established and perceived to play an important role in the recognition and management of patient deterioration. However, embedding of NEWS into nursing care within an acute NHS trust appears to have affected Registered Nurses' use of clinical judgement which has implications for the nursing profession as well as patient safety. As identified in the Chapter 5, there is a failure to recognise that every time that NEWS is used there is a potential for any of three pinch points to affect the course of action that is taken. In order to mitigate the impact of each of these pinch points, nurses need to be supported in the development of their clinical judgement skills beyond the stage of noticing, they need to be practicing and developing within a learning culture. This in turn would allow NEWS to be used for the purpose it was developed, to support decision-making, not as a replacement for clinical judgement.

6.6 Conclusion

This chapter draws together a new understanding of the meaning of using NEWS to nurses and nursing through interpretation and contextualisation of the findings of this study through further exploration and synthesis of existing literature, as per the Gadamerian spiral (Chapter 4, Figure 4.1). This contextual interpretation of the findings through the process of revisiting the literature has been reflected by moving from the whole to the parts of the phenomenon as understanding develops and further fusion of horizons occur.

Chapter 5 identified that embedding of NEWS into nursing care within an acute NHS Trust appears to have affected how Registered Nurses' practice. There is a failure to recognise that every time that NEWS is used there is a potential for any of three pinch points to affect the course of action that is taken. This could lead to failed opportunities to prevent deterioration or recognise it at a time where deterioration may be reversible.

Chapter 6 has revealed the meaning of using NEWS to nurses themselves. First, the chapter explored confidence and competence of junior nurses, overseas nurses and senior nurses and the implications of these on the use of NEWS. Contrasting positions were identified. The reassurance that junior and overseas-trained nurses felt in having a checklist to follow was not shared by senior nurses some of whom expressed concerns that the nursing profession was at risk of losing its problem-solving and critical thinking skills. Next, an understanding of the workplace culture surrounding NEWS was offered highlighting the compromises that nurses made as a result of balancing workload and skill mix, with a significant risk captured in inappropriate delegation of vital sign monitoring. In the absence of developed skills of clinical judgment junior nurses are reliant on the clinical skills of their senior colleagues to respond to the deteriorating patient, taking responsibility and managing the associated workload. That reliance combined with heavy workloads means that learning opportunities for junior nurses in relation to managing patient deterioration and developing their clinical judgement are rarely seized.

Finally, application of Tanner's model of clinical judgement (2006) as a theoretical underpinning provided a deeper understanding of the impact of NEWS on clinical judgement, revealing a gap in the development of clinical judgement skills for Junior RNs and potential subsequent impact on both nursing practice and patient safety. Being able to manage early signs of patient deterioration was a source of pride for senior nurses but without opportunities to develop their skills and the absence of a culture of learning, junior nurses are not being nurtured to develop their clinical judgement for increased autonomy, in turn creating future skills gaps in the nursing profession and implications for patient safety. With increasing numbers of nurses subject to moral injury leading to burnout and exiting the profession as a consequence , a culture shift is required for NEWS to support decision-making and clinical judgement in the assessment and management of patient deterioration.

The final horizon, as the stepping off point for this study, reveals a failure to recognise that every time that NEWS is used there is a potential for any of three pinch points to affect the course of action that is taken and the way NEWS is being used impacts on nurses themselves including posing a threat to the development of junior nurses' clinical judgement. Making the wrong judgement at a single pinch point is likely to be detrimental to the safety of patients. At the heart of this research was always the drive for improvement of patient safety through gaining deeper understanding through the lived experiences of nurses, as the main users of NEWS.

The final horizon highlights significant implications for both clinical practice and nursing in the use of NEWS that need to be addressed by the nursing profession and the health service. The implications for practice are discussed in the final and concluding chapter for this study, with recommendations which urge actions to be taken with regard to policy, practice, and subsequent research.

7 Conclusion

7.1 Introduction

Gadamer's final words in Truth and Method (2004, p581) are:

> *"I will stop here. The ongoing dialogue permits no final conclusion. It would be a poor hermeneuticist who thought he could have, or had to have, the last word"*

The term 'conclusion' reflects that of finality and surety, yet Gadamer (2004) asserted that there is no final or absolute truth. For the purposes of this thesis, it is essential to pull together the parts of this study into the whole completing this episode of research, providing an answer to the research question. This is reflected by the researcher reaching the end of the Gadamerian spiral (Figure 4.1) and sharing the new horizon yet acknowledging that whilst this is the end point for the study, it is not a final or absolute answer, given the importance of recognising how temporality and historicity underpin understandings of 'being-in-the-world'.

This chapter starts by stating what was already known about nurses' use of NEWS [the National Early Warning Score] and what this study adds through the presentation of a new horizon which addresses the research question of "*What are registered nurses' experiences and perceptions of using NEWS in the U.K. as part of the recognition and management of acute adult patient deterioration?*". The reflexivity of the research is critically appraised accompanied by a discussion of the strengths and limitations of the study. The contribution that the study makes to research, nursing and healthcare will be revealed, aligned to recommendations for practice as well as future policy and research. The dissemination strategy is outlined, and the thesis drawn to a final closure.

Dibley *et al.* (2020) suggest that the value of hermeneutic work sits in the way in which it is received and how the interpretation changes the audience and therefore the ability of the research to grasp the reader is paramount. It is hoped that this thesis has generated a new awareness of the use of NEWS through the interpretation of RNs' stories as the main users of NEWS. The interpretation of their experiences has generated a deeper understanding of the use of NEWS on clinical practice and patient safety as well as exploring the meaning of using NEWS for

nurses revealing the interaction between NEWS and clinical judgement. This concluding chapter therefore summarises the study, identifies its original contribution to knowledge, and considers its implications and potential impact in relation to modern day healthcare in the U.K. and for the nursing profession.

7.2 Summary of the study

7.2.1 What was already known

Failure to recognise patient deterioration and act in a timely manner is a significant patient safety risk and may lead to adverse patient outcomes including preventable death. A prominent study in the United Kingdom (U.K.) in 2012 (Hogan et *al.*, 2012), that formed the basis of several improvement initiatives, reported that 5.2% of hospital deaths have a 50% or greater chance of being preventable. Globally, there have been numerous improvement initiatives introduced to combat this phenomenon to decrease adverse events and improve patient outcomes. Early warning scores (EWS) were proposed as a potential solution as a detection and response tool to deterioration.

Previous research looking at NEWS is limited by its implementation in 2012, and sporadic use until NEWS was mandated in 2018. Studies considering a range of EWS reported efficacy in identifying deterioration and predicting patient outcome such as unplanned intensive care admission (Chua *et al.,* 2017; McGaughey *et al.*, 2017; Saab *et al*., 2017). However, despite several systematic reviews highlighting the impact of cultural, organisational, and educational factors on identification of deterioration (Chua *et al.*, 2017; Le Lagadec *et al.,* 2017; McGaughey *et al.*, 2017) few studies addressed the human factors which may impact on the use of the tool or investigated users' experiences, specifically those of nurses who are the main users of EWS tools (National Confidential Enquiry into Patient Outcome and Death [NCEPOD], 2015). Evidence of poor compliance with EWS (Endacott and Donohue, 2010; Hands *et al.*, 2013; Kolic *et al*., 2015; Mitchell-Scott *et al.,* 2015; Odell, 2015), further compounded by failure to initiate effective escalation (Ludikhuize *et al.,* 2011; Shearer *et al.,* 2012; Massey *et al.,* 2014; Petersen *et al.,* 2014; Fox and Elliot, 2015) emerged from the existing evidence base.

Whilst several authors suggested that EWS may prevent nurses from using clinical judgement and increase their reliance on tools (Bailey *et al.,* 2013; Alam *et al.,* 2014;

McGaughey *et al.,* 2017) there was little evidence to support this. A clear conflict of findings emerged in the studies with regards to the extent of assessment outside of EWS in clinical practice with some studies suggesting that nurses are reliant on EWS whilst others suggest EWS is part of a wider assessment process. There was, however, no exploration of the perceived impact of EWS on nurses' clinical judgement and decision-making processes; contextual factors surrounding the use of NEWS; or the impact of experience and seniority on the use of NEWS. Omission of these factors in existing research may not expose a full picture of risks associated with the use of NEWS and potential serious implications on patient safety.

7.2.2 The new horizon – the contribution to new knowledge

NEWS was introduced into the U.K. as an aid to clinical assessment, to supplement clinical judgement in acute care, not to substitute for competent clinical judgement (RCP, 2020). Taking an interpretative hermeneutic approach to the study, underpinned by the philosophy of Gadamer allowed nurses' experiences and perceptions to be thoroughly explored with the researcher transposing herself into the narrators' horizon to elicit meaning from these experiences, gaining a deeper understanding of their experiences as presented in this thesis. The study was designed by recognising Gadamer's belief that the value in dialogue is influenced by the degree to which one embedded in the conversation with an openness towards the other and to be prepared to be told something *"alien"* (Gadamer, 1977). The emergent meaning of those experiences was then further explored through the steps of the Gadamerian spiral (Figure 4.1) moving backwards and forwards between the dialogue, text, and literature. The new understanding was presented as a story, illuminated through Tanner's (2006) model of clinical judgement, which revealed the process of using NEWS as an interpretation of nurses' experiences and perceptions (Figure 5.1). Two perspectives of the story were presented; the first focused upon the meaning of using NEWS for clinical practice, the second concentrating on the meaning for nurses and the nursing profession.

Within the story three pinch points in the use of NEWS emerged from the exploration of the experiences and perceptions of nurses. Each pinch point reveals a risk to patient safety, with the term 'pinch point' representing an antagonistic force working against a goal (Weiland, 2020). That goal is effective recognition and management of patient deterioration. Each pinch point represents realistic risks of failures in

patient safety where patients have potential to become exposed to the risk of their deterioration being missed, or poorly managed.

The first pinch point (section 5.3) revealed the impact of vital signs being undertaken by Health Care Assistants (HCAs). This delegation of practice created several risks which revolved around traditional practices (‘doing the ‘obs’ round’); concerns over compliance; competence; honesty and trust; impact of hierarchy; appropriate delegation; and delays to escalation. Despite other sources having reported issues around delegation (Ansell *et al.,* 2015; McGaughey *et al.,* 2017; Smith *et al.,* 2020; Smith *et al.,* 2021) this was unexpected, or ‘alien’ (Gadamer, 2004) to the researcher who had not considered that this practice continued to exist and felt shocked to find it in the site in which the research has taken place which is recognised for high standards of practice in the sector. The harsh reality that RNs would undertake delegation to HCAs without consideration of the appropriateness of the delegation and consideration of the competence of the HCA to undertake the procedure was impactful to me both personally and professionally. On reflection of this reality and my concerns regarding patient safety, this was raised with the senior nurses that were supporting the study, who took the matter forward from an organisational perspective based upon the associated patient safety implications.

The second pinch point (section 5.4) revealed that Junior RNs may rely solely on NEWS, ignoring any concerns they may have about the patient, indicating that if NEWS is not specifying deterioration, it may go either unnoticed or ignored. This behaviour was influenced by several factors including workload, situational awareness, experience, confidence, and education. When the NEWS score potentially represented a false negative, Junior RNs trusted the score above their own clinical judgement. As a result of using NEWS Junior RNs undertook limited clinical judgment beyond full or partial completion of the first stage of noticing (Tanner, 2006) prior to seeking help from their senior colleagues to take over the care of the deteriorating patient.

The third pinch point (section 5.5) focused on the role of the Senior RN in the use of NEWS and them being the first point of contact with regards to potential deterioration of a patient. The term ‘always’ forms a significant part of this pinch point, revealing that the Junior RN rarely undertook any further action after NEWS but passed responsibility to the Senior RN who readily assumed responsibility for the patient, ‘taking over’ reflecting a deference to expertise principle used within HROs. The

dialogue with Senior RNs signified their completion of four stages of clinical judgment (noticing; interpreting; responding; reflecting). This would be an expectation of 'expert practice' (Benner, 2010). However, the hermeneutic interpretation of their accounts revealed a risk of over-confidence in self-management of patients and the limiting of opportunities for experiential learning for Junior RNs as a result of them taking control of the situation.

The use of NEWS is well established and perceived to play an important role in the recognition and management of patient deterioration. However, as this study reveals, there is a previously unrecognised failure to recognise that every time that NEWS is used, there is potential for any of three pinch points to affect the course of action that is taken. Making the wrong judgement at a single pinch point is likely to be detrimental to the safety of patients. It is therefore reasonable to assume that errors in clinical judgement at all three pinch points in the care of an individual patient could lead to a less favourable outcome such as death or other serious adverse event. Furthermore, it is possible as a result of pinch point one, that several patients could be affected at the same time if the registered nurse delegates to a healthcare assistant who fails to report until the 'obs' round has been completed, delaying appropriate action.

The final and new horizon draws together the three pinch points described above alongside the meaning for nurses and the nursing profession. Whilst NEWS offered reassurance to Junior RNs, it led to concerns that the nursing profession was at risk of losing its problem-solving and critical thinking skills. The workplace culture surrounding NEWS revealed constant compromises in delivery of nursing care and lack of learning opportunity for junior nurses with a potential consequence of future skills gaps in the nursing workforce. There is an element of blindness on the part of the RNs , explainable through Tanner's (2006) clinical judgement theory, that the embedding of NEWS into nursing care within an acute NHS Trust has impacted on RNs' use of clinical judgement which is restricted to noticing.

7.3 Enhancing Reflexivity through Reflection

Central to the use of Gadamerian hermeneutics is the ability to reflect in order to gain understanding. Gadamer refers to the term 'hermeneutic consciousness' – an awareness that *"its bond to the subject matter does not consist in some self-evident, unquestioned unanimity, as is the case with the unbroken stream of tradition"*

(Gadamer, 2006, p. 295). Dealing with one's pre-understandings from the start of the study allows for deeper understanding, however pre-understandings were not all clear from the outset and these were identified throughout the course of the research, provoked through dialogue with the narrators and dialogue with the literature as the researcher progressed through the Gadamerian spiral (Figure 4.1).

This ongoing re-visiting of pre-understandings and assumptions have been achieved throughout this study by means of a researcher diary (Appendix 5) but also through discussion with supervisors on my developing understanding. After each interview a self-reflective exercise was undertaken which allowed gathering of my new horizon, how that had fused with that of the narrator and new examination of my pre-understandings, a merge of past and present horizons. These were captured in my field notes and post-transcribing thoughts (Table 4.5).

To gather an ongoing summary of my thoughts and evolving pre-conceptions I maintained a Gadamerian reflective corner (Appendix 6) through the study. Some of this is captured in this section. These enabled a heightened awareness throughout the stages of interpretation and analysis and enabled me to reflect on these in doctoral supervision sessions. My reflection as I explored the meaning of the use of NEWS for nurses and the nursing profession are evident in Chapter 6, highlighting my reflection as a RN and central to the study.

Whilst my pre-conceptions were focused upon the phenomena, it is important to acknowledge pre-conceptions of my methodological approach. These have also formed a new horizon as a result of the study. As the study progressed, so did new meanings and understanding of Gadamer's philosophical approach and how this influenced the way I undertook the study. It became clear early on in my journey that whilst Gadamerian hermeneutic interpretative phenomenology was a good fit for my study, it was not an easy approach to follow as an early career researcher and a pragmatist. I harboured some prejudices at this stage, which Gadamer (2006) suggests are not negative thoughts but the rendering of judgement before all elements of a situation are examined. In fact, for me, these are better termed 'prejudgements' in that I was making judgements before I possessed the adequate understanding or evidence to support them. I needed the 'lived' experience of hermeneutics to understand those prejudices but didn't realise that at the time. Text Box 7.1 is an extract from an early entry in my research diary whilst considering methodologies.

Text Box 7.1 Diary extract – reflection on methodology

Date: 10/9/2018 – preparing for my biannual doctoral student panel

I have been grappling with my methodology, primarily because I am not sure I completely understand it. There seems to be no guide on how to use it, there are no clear steps and that is what drew me to case study research when I first started to think about my research proposal. I was dissuaded from case study research when I attended my mock ethics presentation but that is what makes sense to me. I understand that interpretative phenomenology allows me and my experience in this area to be a part of the research and that makes sense. In preparing for my RES2 I have been reading around other theses and doing more reading, summarising some bullet points on my wall to keep reminding me. Still not sure if this methodology is right but slowly understanding more. Will discuss again with my supervisors…….

An openness to meaning was key throughout the hermeneutic spiral, recognising that there was always further interpretation and no finite end. This, at times, was frustrating and met with a sense of dissatisfaction and disappointment when I realised that I had not completely understood 'new meaning' and the spiral continued going round and round with me moving backwards and forwards between the whole and the parts. This was identified through discussion with my supervisory team who explored meaning with me, sharing their understanding and horizon, contributing to the interpretation and analysis, whilst also acknowledging the challenge of this approach. Understanding where the spiral could be ended for the purposes of this study also created feelings of uncertainty but acceptance of the new horizon applying to that point in time when the study needed to end was achieved. There is, however, more meaning and understanding to explore. For example, through interpretation I realised that further exploration of the use of NEWS from the perspective of the Critical Care Outreach Team would give another world view, another perspective on the phenomena that could add to understanding and develop my horizon. This fell outside of the remit of this study but is a recommendation for future research (Section 7.7).

A key outcome of reflective practice is the consideration of how things could be done differently as a result of the learning that has taken place during the journey. The first point of learning related to self-confidence and self-belief. I spent the first few years of doctoral study suffering from imposter syndrome (Bravata *et al.,* 2020). I appreciate that this is common for doctoral students but never expected it to impact

my progress, until I spoke to others in the same position. This inhibited my developing understanding of Gadamerian hermeneutic phenomenology until the point that I realised I needed to dismiss these feelings. I was aware that this was a difficult approach for a doctoral study but also knew it was a great fit for the study and my historical being. I viewed myself as a pragmatist and did not believe I could transition to a researcher but once I had a belief in myself, I started to make progress. My supervisors recognised this, accurately suggesting that I commenced this study and thesis utilising my skills as a project manager rather than a researcher. However, once I was able to move forwards with my new confidence, I was able to focus. I believe that if I had made that transition earlier, I might have approached my interviews with more confidence and possibly extracted greater depth in the narrators stories to further answer the research question. This new confidence would help me for future studies, with the thesis a reminder of my journey.

Studying part time and working full time hindered my progress alongside the confidence discussed above. My thesis was initially written in a chapter-by-chapter way, haphazardly as a result of trying to make the most of downtime awaiting ethics approval and during the recruitment period. At the point at which the chapters needed to become a thesis, I under-estimated this process, not recognising that the parts of the thesis were parts of the whole which was a story to be told to the reader reflecting the journey of the research and the researcher. This was made more difficult by having large gaps away due to my conflicting priorities. The lesson learnt refers to the time commitment for an interpretative study, time needed for immersion without distraction. This learning can be carried forward to future research and time commitments agreed in advance of the study.

On reflection I believe that use of a hermeneutic interpretative phenomenological approach has strengthened the reflective approach to this study through embracing my pre-conceptions and pre-understandings and allowing them to be integral to the research. Some phenomenological approaches discredit the researcher as an expert within the research process and suggest the bracketing of assumptions and experiences of the phenomena from the process of undertaking the research (Giorgi, 2008). Gadamer (1976) however proposes understanding is a state of ‘being in the world’ and there is more than one world view to respect while being true to our own experiences and perceptions. Gadamerian hermeneutic phenomenology therefore has offered me, as a researcher with a specific interest in a phenomenon the

opportunity to explore other people's perceptions and experiences without disregarding my own. It also allowed for the exploration of how people interact with others as well as with things (such as NEWS) (Dibley *et al.,* 2020). This embraces the concept that all understanding is formed from history and that reality cannot be interpretated without presupposition and background (Dostal, 2021). It is hoped that this thesis underpinned by Gadamerian philosophy may encourage other researchers to embrace this methodological approach for their own studies.

7.4 Strengths and Limitations

Reflecting on the strengths of this study, the major strength lays in its focus on nurses as the main users of NEWS, exploring their experiences and perceptions on an individual basis to gain deeper understanding of the phenomena. The inclusion of a wide variety of Agenda for Change (NHS Employers, 2022) bands in the study has demonstrated a differentiation in the use of NEWS within the nursing hierarchy. The study sample included a large proportion of overseas nurses revealing potential cultural implications which impact on the use of NEWS. The study is situated in a current and existing patient safety issue which poses a challenge to healthcare as reflected by the focus on this phenomenon by policymakers. The downside of this currency, however, is the constantly changing evidence base. Nonetheless, this study makes a significant contribution to the evolving evidence base around the deteriorating patient phenomenon and the impact of NEWS on registered nurses' clinical judgement.

The reflexive nature of the study, underpinned by the Gadamerian hermeneutic interpretative approach has promoted the honesty and trustworthiness of the study as discussed in 7.3. This approach has enabled me as the researcher to retain my passion throughout, actively listening to the experiences and perceptions of the RNs and valuing these has enhanced the quality of the data and understanding of the use of NEWS in the current acute hospital ward setting.

It would be impossible to exclude the COVID-19 pandemic from my reflection of the strengths and limitations of the study, as it impacted on the meaning of NEWS and my evolving understanding of nurses' use of the tool. Data collection was completed just two weeks before the first U.K. national lockdown commenced in late March 2020. The results of the study therefore apply to pre-pandemic conditions,

experiences, and perceptions of NEWS. The last interviews took place in March 2020 in the knowledge that the opportunity to obtain more interviews was limited. Whilst at this stage I felt reassured that data saturation was complete, I cannot exclude that this was not influenced by the difficulties that would be faced by seeking more RN narrators.

Methodology

Hermeneutic phenomenology is not commonly utilised within nursing research, as evidenced by literature searches. There are a number of critics of hermeneutic phenomenology who may consider the methodology as a limitation of this study (Crotty, 1997; Giorgi and Giorgi, 2000). For example, data collected in this way is subjective and hence maybe considered to lack validity, however this view demonstrates a lack of appreciation for the underpinning philosophical approach. Interpretative research does not seek to generalise nor prove (McConnell-Henry *et al.,* 2011) but focus on the meaning of individuals being in the world and how this influences the choices they make (Lopez and Willis, 2004). Whitehead (2004) argues that critics of the interpretative phenomenological approach hold suspicions of how data may be shaped by predispositions and bias. Analysis of hermeneutic interpretative phenomenology does not follow a method or guide, with flexibility in the approach taken underpinned by reflexivity which plays a central role in the researcher transparency over their preconceptions (Horrigan-Kelly *et al.,* 2016). McConnell-Henry et al. (2011) advocate that the interpretative researcher focuses on establishing the foundations of rigour for themselves as opposed to more traditional and positivist approaches to establish rigour which focus on credibility, reliability, validity and generalisability. Reflecting this the provision of a clear audit trail for decisions making underpins the rigour of this study. Study authenticity is demonstrated by the inclusion of a wide variety of verbatim quotes of various lengths from narrators.

Considering the trustworthiness of the study, I believe it is strengthened by the depth of reflection in the planning, implementation and evaluation of the research as has been described throughout. Reflecting after interviews with RN narrators, and then again post-transcribing, enabled identification of areas of personal weakness in my communication skills and how this may influence the conversation and textual meaning. For example, the first three interviews were undertaken one directly after the other without any time in between for me to reflect or gather my thoughts. This

was driven by convenience. Later I regretted this, realising that the post-interview phase contributed to both the interpretation and the analysis of my data. Dibley *et al.* (2020) acknowledge that the novice researcher has a tendency to set the pace too rapidly, advocating that experiencing the interview as a participant first can help the researcher to avoid this and recognise the implications of an inappropriate pace. This was not considered prior to the study but is learning to take forward to future studies. At the time however I did realise the impact of this behaviour and made future bookings with post-interview quiet time to reflect and take notes to consider for the next conversation.

As I became more comfortable, the dialogue flowed, and I felt greater immersion. As discussed in section 4.7 the credibility of the findings is focused upon the richness of the dialogue and the importance of allowing narrators to take the lead in the conversation, reflecting the focus on time, space and context within interpretation. On one occasion a technical hitch meant the interview recording was deleted. The narrator was keen to repeat the interview, but the second interview was lacking originality in thought as both of our horizons had already fused. I therefore relied heavily on my notes in the interpretation of this dialogue, feeling that the second interview had diluted the experiences discussed in the first instance. This experience did however confirm to me the reason why I should not go through a process of member checking as suggested by Fleming *et al.* (2003) on the basis that this invalidates the work of the researcher and the process of interpretation (Morse *et al.,* 2002). McConnell-Henry et al. (2011) cite a range of factors opposing the application of member checking in relation to interpretative phenomenology, which refer to a lack of understanding of the interpretative approach; impact of member checking on rigour through the halo effect; and pragmatic factors such as time and budget constraints.

Sample

Sample size is frequently referred to with regards to strength and limitations of a study in terms of representativeness, however as discussed in section 4.6.2, determining sample size for a hermeneutic phenomenological study should not focus on representativeness. Hermeneutic phenomenological approaches do not seek a definitive response to a research question but an understanding of multiple and alternative views of a phenomenon as presented to individuals (Dibley *et al.,* 2020). Section 4.6.2 discusses the concept of information power with regards to sample

size, proposing that the information power of this study, as aligned to the underpinning philosophical approach of Gadamer. The strength of the sample lies in the depth of the meaning and understanding obtained from the rich dialogue with the narrators.

The diversity of the sample cohort was broad reflecting a variety of years' experience, Agenda for Change pay bands (NHS employers, 2022) and clinical specialities. Invitation emails went to all RNs that met the criteria however recruitment became easier once the first five people were interviewed and shared their experiences with their colleagues, no doubt encouraging them to become a participant, as per snowball or chain sampling (Naderifar *et al.,* 2017). Whilst this strengthened the study, I recruited people that were interested to share their perception and experiences. Findings from a snowballing sampling approach may reflect a narrow network of acquaintances (Polit and Beck, 2017) and therefore may not be representative of more widespread views of a phenomenon. This limitation can be strengthened by the provision of Table 4.2 and 4.3 which provide detail of the characteristic sample to help the reader compare this to their own setting and therefore evaluate the transferability of the findings.

Setting

The findings of this single-centre study are specific to the NHS Trust in which it was undertaken (see section 4.6.2). This therefore limits the transferability of the findings. The hospital was selected both for convenience but also as it is considered representative of most suburban district general hospitals in terms of bed numbers, services provided and population served (Office for National Statistics, 2021). London is recognised to have the lowest number of U.K. trained nurses (66%), with a high proportion of nurses from Asia (16%) made up of mostly Filipino or Indian Nurses (Baker, 2021). Therefore, the high number of over-seas nurses in the sample is representative of the setting. It is acknowledged that if the study was repeated in other centres there would be both similarities and differences to the unique characteristics of each hospital.

In the study setting, HCAs were reported to undertake vital signs. The preparation for this role for HCAs was not clear and may represent a characteristic difference across hospital settings. Common to all HCAs is the need to undertake the Care Certificate however this does not include vital signs monitoring. Other characteristic

differences which may limit the transferability of findings to this study are systems and processes for escalating; organisational culture; staff training and development; competency assessment; workload and skill mix; compliance measures. These are all factors that may impact nurses' use of NEWS that have been discussed in this study and likely to vary across hospital settings.

7.5 Recommendations for clinical practice

Phenomenology is uniquely positioned to help learn from the experiences of others through exploration of lived experiences (Neubauer *et al.,* 2019). Whilst the aim of phenomenology is not to generalise, the findings of this study do lead to suggestions for improvement. This study is embedded in patient safety practice, focused on minimising the impact of the risks identified in the form of three pinch points. As a researcher with a practice interest in the deteriorating patient phenomena, it is essential that the findings of this study can translate into suggestions for both service improvement and future nursing professionals. Several gaps have been revealed in the existing evidence base (Appendix 1 and 2) around nurses' use of NEWS and the interaction between NEWS and clinical judgement processes. This suggests that whilst the introduction of the patient safety improvement programmes has taken place (NHS England, 2022a) there is minimal evaluation to date of how tools such as NEWS2 are utilised in practice. The recommendations below therefore focus on the contextual factors around the use of the tool which will support the ongoing use of NEWS2 and minimise the risks highlighted by this study.

There are two areas where recommendations are identified as a result of this original study. The first relates to education and development of the nursing workforce in both recognition and management of the deteriorating patient. The second relates to the adoption of a supportive patient safety focused learning culture which supports the development and use of clinical judgement at all stages.

7.5.1 Education and development of the nursing workforce

Education and training are frequently cited as the primary solution to the patient safety issue of lack of recognition and management of deterioration (Pantazopoulos *et al.,* 2012; Chua *et al.,* 2013; McDonnell *et al.,* 2013; Hart *et al.,* 2014; Massey *et al.,* 2016) yet until recently there have been no national frameworks or recognised competency standards to support this. A competency framework released by the

Department of Health (2009) has never been implemented (see Chapter 1) but more recently, because of the COVID-19 pandemic, plans for the development of the workforce with training infrastructures and competencies for core skills are evident. Competencies developed pre-pandemic (Critical Care Network, 2018) are in place, a commitment to funding educational provision that meets these standards is required by the NHS as it has been for other workforce development, such as the Advanced Clinical Practitioner programmes (Health Education England, 2017)

Pinch Point one – recommendations for improvement in policy and practice

When delegating vital signs monitoring, the Registered Nurse must be assured that the Health Care Assistant holds the necessary competence. The study identified the risks associated with the HCA workforce, which are predominantly focused on competence in vital sign monitoring, traditional practices of vital sign monitoring and escalation to the RN. In the absence of 39,000 RNs (NHS Digital, 2022), the U.K. is likely to increasingly rely on the unregistered workforce for support. New workforce roles, in particular the Nursing Associate (NA) role may add a new layer to the existing hierarchy by bridging the gap between unregulated HCAs and RNs (NMC, 2022). HCAs are an invaluable group of staff who require urgent investment to develop knowledge, skills and attributes required for monitoring and interpreting vital signs, identification of soft signs, and assimilation of escalation skills.

Nationally recognised standards for the development of Health Care Assistants beyond those of the Care Certificate are required. These should focus on the development of skills for deteriorating patient assessments, including vital signs; soft signs of deterioration which sit outside of NEWS such as changes to skin colour and turgor, behaviour changes, mobility, breathing pattern, urine output and oral intake (Wessex Academic Health Sciences Network, 2022). Alongside these skills-based assessment should be the underpinning knowledge for assessment and reflective practice. There are many examples of best practice around education for the unregistered workforce that could guide the development of this educational package, for example the Wessex Academic Health Science Network project on spotting the early ‘soft signs’ of deterioration and sepsis. With the national role ‘to support the delivery of excellent healthcare and health improvement

to the patients', Health Education England are best placed to drive this standard and ensure the quality of the workforce.

Health Education England should also consider the needs of the Nursing Associate workforce in the recognition and management of the deteriorating *patient.* As the NA role grows and greater understanding emerges of where this role sits in the recognition and management of deterioration, there will be a need to explore the ongoing development needs of this new group of staff.

Pinch Point two – recommendations for improvement in policy and practice

Junior Registered Nurses should endeavour to engage with the four stages of Tanner's clinical judgement model when using NEWS. Findings from this study suggest that Junior RNs are undertaking primarily noticing as the first stage of clinical judgment. Some Junior RNs do not complete all actions expected in the noticing stage, whilst some do. Some Junior RNs are perceived to demonstrate some limited actions within the stage of interpretation, suggesting a development continuum. As Senior RNs move towards retirement, a gap will be exposed in the workforce in enhanced skills to recognise and manage deterioration and therefore action to address deficits in the development of clinical judgment skills is urgently required. The actions are underpinned by education and a supportive culture as described below.

Junior Registered Nurses require post-registration education to help develop their clinical judgement skills. Whilst various education and training opportunities exist there is no nationally recognised educational programme that focuses on the development of four stages of clinical judgement. Currently available education and training opportunities range from one day workshops, trademarked short courses (i.e.ALERT, BEACH, COMPASS, FIRST2ACT, AIM) to full academically accredited modules. Whilst some are endorsed by bodies such as the U.K. Sepsis Trust and the Intensive Care Society and all have similar aims and objectives, there is no agreed curriculum, quality assurance measure or confidence for an employer's perspective on the capability of their staff on completion of the education. The recommendation for the Junior RN workforce is therefore for a post-registration standardised U.K.-wide education programme that can be undertaken from the six-month point after NMC registration. This recommendation could be underpinned by

the competency framework for registered practitioners' level 1 and enhanced care areas (National Outreach Forum and the Critical Care Network National Leads, 2021).

Senior Registered Nurses should help junior nurses develop their clinical judgement and care of the deteriorating patient skills. Junior RNs in this study perceived a gap between the teaching of theory and the reality of practising in the clinical setting, revealing the need for experiential learning, and skills rehearsal. Missed opportunities for skills rehearsal through experimental learning were revealed with Junior RNs leaving the deteriorating patient on arrival of their Senior RN. If the clinical environment precludes this, the mode in which similar education, for example through simulation, takes place should take into account the findings of this study.

Simulation training should be explored as a way to safely develop junior nurses' ability to recognise patient deterioration, even in the absence of triggering by NEWS, and help develop their clinical judgement skills. Simulation is the preferred method of training by Health Education England (NHS, 2016) for the improvement of patient safety. The use of medium to high fidelity simulation is associated with improved assessment techniques and skills, with skills and knowledge retention being a positive outcome (Connell *et al.*, 2016).There are limited studies of simulation in recognition and management of deterioration to support its use in both pre and post registration programmes for bridging the theory-practice gap and its realistic value and application to practice (Connell *et al.,* 2016; Bliss and Aitken, 2018), situational awareness (Cooper *et al.,* 2013) and the ability to undertake a systematic assessment to inform decision-making processes (Bliss and Aitken, 2018). Tanner (2006) suggested the application of her four-stage model as a tool for debriefing after an event such as simulation enabling nurses to recognise failures in noticing and factors that may have contributed to those failures. With NEWS utilised at the noticing stage of clinical judgement, simulation can focus on extending assessment outside of NEWS moving onto the stages of interpreting, responding, and reflecting. In recommending the use of simulation, the high cost of simulation equipment and staffing required would need to be addressed. Health Education England, through the development of a simulation strategy aims to ensure equity of access to simulation facilities and opportunities nationally (Health Education England, 2022) which should help address access issues to this

simulation. This strategy also aims to develop the simulation standards aimed at all healthcare professionals.

Pinch Point three – recommendations for improvement in policy and practice

Senior Registered Nurses should be given access to ongoing post-registration developmental opportunities allowing them to demonstrate their ability to apply all four stages of clinical judgement. The findings of this study report the bulk of the assessment and management of the deteriorating patient being undertaken by the senior and most experienced members of the nursing team. By virtue of holding a senior position, it is often assumed that Senior RNs are able to demonstrate all four stages of clinical judgement. However, there are some areas of clinical practice that may not experience deteriorating patients on a regular basis, so rehearsal of skills is infrequent for nurses working in those areas. Senior RNs should have access to ongoing post-registration developmental opportunities relating to the detection and care of the deteriorating patient and should be reflective practitioners.

7.5.2 Fostering a supportive culture for clinical judgement

This study shows the importance of clinical judgement in recognising and responding to deteriorating patients. A supportive workplace culture for the development and employment of clinical judgement is necessary to help prevent patient harm. NHS England (2019, p8) suggest key ingredients of a patient safety culture in a healthcare organisation are "*staff who feel psychologically safe; valuing and respecting diversity; a compelling vision; good leadership at all levels; a sense of teamwork; openness and support for learning"*. These ingredients should underpin organisational culture which work towards continuous quality improvement whilst learning from the errors of the past and prevents them from occurring again in the future.

Develop a learning culture with shared responsibility for recognising and preventing patient deterioration. This study reveals a gap between current performance and the desired performance in the use of NEWS. The desired performance is for NEWS to be used alongside clinical judgement. NEWS was designed as an aid to clinical decision-making, to support clinical judgement, not

replace it (RCP, 2020). However, education alone cannot drive improvement in recognition and management of deterioration. Improvement requires a cultural shift that embraces and values nurses' clinical judgement whilst supporting the development of junior nurses in all stages of clinical judgment to improve patient safety.

This study demonstrates that clinical judgement is limited by a culture that focuses on completion of NEWS and task-orientated approaches to care which are prescribed by healthcare organisations, directly conflicting with nurses' moral code and ability to provide appropriate nursing care. Moral injury in nurses is known to be impacted by system factors, those that have been identified in this study include a lack of support, a lack of autonomy, administrative burden and inadequate resources. Mewborn *et al.*(2023), suggests that this is enhanced by young age (<45yrs) and less experience, meaning that the risk of moral distress and moral injury in the junior RN workforce is a challenge currently facing nursing. These moral stressors are usually rooted in workplace culture and action to address them should focus on leading clinical decision-making, questioning appropriateness instead of blindly following orders, feeling valued and empowered, and increasing autonomy.

Berwick (2003) reports that change to healthcare systems is inherently challenging and focusing on trust may be the first step towards building a culture of improvement. He refers to the need to move from a position of 'taseki' (the burden is yours) to a shift of attitude to 'jiseki' (the responsibility is mine) as a first step to change. This study indicates a 'pass the buck' mentality that occurs as a result of escalation, with Senior RNs taking over the care of the patient. A shift in the culture from taking over responsibility to a learning culture where the responsibility is shared, alongside the education and development discussed above will enable the development of clinical judgement skills in Junior RNs, preparing them for the role of expert in the future. This culture shift should be driven by courageous leaders with emotional intelligence and ability to manage relationships (NHS Institute for Innovation and Improvement, 2017) but co-produced with full team engagement that starts with an understanding and open awareness of the current culture and a collaborative vision for improvement.

Value clinical experience and be prepared to act on doubts. Healthcare can be made more reliable. There is an opportunity to learn from HROs and embed HRO principles to enable cultural change to move away from individual accountability and

blame to a systems approach to safety but with recognition that some principles may not be applicable to healthcare. Healthcare should promote the value of doubt in the same way that a HRO does, empowering nursing staff to trust in themselves and their doubt about a patient, despite what NEWS is telling them. Research supports the predictive ability of NEWS in recognition of deterioration; however, this study suggests that improvements are required to system design surrounding NEWS. Whilst evidence-based recommendations and guidelines offer standard setting and patient safety the professional decision-making autonomy of the nurse and doctor must hold significance and power (Tingle, 2021).

Ensure appropriate delegation of vital signs measurement. Through the adoption of a patient safety culture, attention should be given to the importance of delegation in the nursing workforce and the safety implications of inappropriate delegation. RNs should be reminded of their professional and legal responsibility for delegation through their NMC registration. Adoption of a patient safety culture should promote the appropriateness of delegation and support registrants to develop the leadership skills to delegate care effectively.

7.6 Recommendations for further research

This study was limited to Registered Nursing staff. Whilst the sample was expanded during the research to include more senior members of the nursing team than previously planned for, it is clear that the exclusion of other members of the nursing workforce has limited the findings. To address these, a number of recommendations for future research have been identified to add to the findings that have emerged from this study.

Future research should focus on Junior Registered Nurses' clinical judgement at the point when NEWS does not trigger. Exploration of decision-making processes in the use of NEWS by Junior RNs would contribute to understanding of the extent of clinical judgement and reasoning process that they make when NEWS does not trigger. This understanding may reveal the extent to which they trust their intuition or concerns and what factors impact on this, including personal factors such as self-confidence and self-belief and external factors such as workplace and organisational culture. This would contribute significant evidence to the use of NEWS and missed recognition of deterioration.

Future research should explore why Senior Registered Nurses may choose to handle patient deterioration themselves rather than call the Critical Care Outreach Team. This study found that Senior RNs were the first point of contact with regards to potential deterioration of a patient (pinch point 3). Often, they assumed responsibility for the patient by 'taking over' the care rather than calling the Outreach team as per the NEWS clinical response protocol. Such research could consider the impact of professional and organisational culture on management of the deteriorating patient.

Future research should explore Critical Care Outreach Team perspectives. The role of the CCOT sits in the efferent arm of the track and trigger system. Whilst not directly involved in the afferent arm, the exploration of the CCOT perspectives on the use of NEWS would add interesting perspectives to this study as receivers of escalation from the clinical areas. This may enhance understanding of the factors impacting escalation and whether they are primarily driven by NEWS or other factors outside of NEWS including the use of clinical judgement. Whilst research does exist in relation to the CCOT (Endacott and Donohue, 2010; Odell, 2019; The National Outreach Forum, 2020; Vlachos *et al.* 2021; Fazzini *et al*., 2022) this research does not specifically look at NEWS or the factors that influence the use of NEWS or explore the interaction between NEWS and nurses' clinical judgement and decision-making.

Future research should explore the experiences of the use of NEWS for overseas trained RNs and their use of clinical judgement. The study revealed that despite overseas nurses having several years of experience prior to arriving to the U.K. their perceptions and experiences of using NEWS aligned to those of Junior U.K. trained RNs with less experience. With plans in the U.K. to increase overseas recruitment of healthcare professionals (Barclay, 2022), understanding of their clinical judgement skills with regards to the use of NEWS is essential.

Future research should explore the use of NEWS by Health Care Assistants and their use of clinical judgement. The study did not include the experiences and perceptions of the unregistered nursing workforce however does reveal that the HCA workforce undertake the bulk of vital sign monitoring. There are very few studies that explore the role of HCAs in the use of NEWS, however Smith et al (2021) did recruit both HCAs and RNs into their study exploring the barriers and enablers of recognition and response to signs of patient deterioration, but not specific to NEWS.

Future research should explore the use of NEWS by HCAs and the extent to which HCAs undertake clinical judgement. This would add another dimension to the findings of this study, revealing greater understanding of the use of news and the factors impacting on it from an HCA perspective. In addition, this would contribute to understanding how the HCA's use of NEWS could be made safer.

As more Nursing Associates enter the workforce, future research should explore their experiences of using NEWS. Research on the implications of the Nursing Associate role in the recognition of deteriorating patients using NEWS would add further understanding to the use of NEWS by nurses. The NA is currently in its infancy, but the NAs are required to be assessed against NMC competencies regarding recognition of deterioration therefore exploration of the clinical judgement skills of the NA workforce would reveal the extent of this role in both recognition and management of deterioration.

Future research should explore the impact of the Covid-19 pandemic on NEWS. NEWS remains relatively new. At the point in which the data were collected for this study, NEWS had recently been mandated across England. This was however also prior to the COVID-19 pandemic. Chapter 1 discussed the possible impact of the pandemic on the use of NEWS. It is likely that the way that nurses use NEWS since the pandemic may have changed, which could be explored in similar way to this study by exploring perceptions and experiences of nurses during and after the pandemic. A follow up study should explore this.

NHS England should support qualitative and mixed method research relating to the deployment and use of NEWS. There is a paucity of research on nurses' use of NEWS in general, with existing research limited to single centre studies. NHS England has made a commitment to the use of NEWS, and this requires a commitment to monitoring its use and the implications for clinical practice, over and above the use of clinical audit which measures NEWS compliance. Further research should also include qualitative studies, like this one, which explore nurses', as the main user, experiences of using the NEWS. One example may be the development of an ethnographic study utilising observation as a data collection tool to uncover what really happens in practice to support the data from this study which focuses on perceptions.

7.7 Dissemination Strategy

Effective dissemination is core to any research and focuses on getting the findings to the people who make use of them and maximise the benefit of the research (NIHR, 2019). Translating the findings of research into clinical practice is challenging but essential for transparent, effective, and efficient healthcare provision (Curtis *et al.,* 2017) and starts with a focused dissemination strategy that identifies stakeholders and methods of dissemination (Table 7.1).

The existing body of evidence confirmed the ability of NEWS to detect deterioration, however, did not consider contextual factors in the use of NEWS by nurses. This study makes a unique contribution to this body of knowledge from its exploration of nurses' experiences and perceptions of using NEWS. The findings of this study have relevance to a wide audience across the healthcare system which includes both clinical and academic settings, policy makers and the public.

The mode in which findings are shared will vary according to the needs of the stakeholder (Table 7.1). A summary of findings report will be disseminated with links to the full thesis and relevant publications to be completed over the next year. The researcher has existing links to deteriorating patient groups, for example the deteriorating patient workstreams that are active within the Academic Health Science Networks across England who will be provided with a copy of the summary report and offered a presentation. In addition, the researcher is a member of various Health Education England networks opening opportunities for wider dissemination across clinical and academic forums. Podcasts and videos may be utilised to summarise the research findings for dissemination to an international audience.

Table 7.1 Sharing findings with stakeholders

Stakeholders	How the research outcomes will be disseminated
Policy makers	• Meeting to discuss headline findings with Wessex AHSN – with follow up report • Publications in planning to include: ➢ Journal of Clinical Nursing (JCN) - National Early Warning Score : a study of the perceived impact of NEWS on Clinical Judgement ➢ British Medical Journal Quality and Safety – The risks associated with the use of NEWS ➢ Evidence-Based Nursing – Has the use of NEWS restricted clinical judgement and critical thinking in nursing?
Academic	▪ 16/6/2021 Presentation at Recognition and response to deterioration webinar 16th June ▪ Publications in planning ➢ Journal of Research in Nursing – What are nurses experiences of using NEWS: an interpretative phenomenological study ➢ Journal of Nursing Education and Practice – Understanding the interaction between NEWS and clinical judgement in nursing ▪ Presentations at regional and national research forums ▪ Conference presentations ➢ RCN International Research Conference Sept 2023 ➢ HSJ patient Safety Congress 2023 ➢ Deteriorating Patient Summit 2023 ➢ NHS Patient Safety Conference 2023 ▪ Poster presentations ▪ Providing links in research portals i.e., EThOS, ResearchGate ▪ Presentation of the thesis in open access ▪ Use of social media to generate discussion and interest in findings
Clinical	▪ 2020 Findings used to inform E-Learning for Healthcare online Recognising and Managing Deterioration programme

	▪ 2022 Development of clinical educational programmes on recognising and managing adult deterioration with NHS Trusts – 'Developing clinical judgement and decision-making beyond NEWS' ▪ Teaching formally and informally i.e., Post registration CPD ▪ Sharing findings at educational forums (i.e. Health Education England simulation networks ▪ Conference presentations ▪ Use of social media to generate discussion and interest in findings
Participants, patients and public	▪ Report to participants of study as requested ▪ Social media – twitter ▪ Service user groups at relevant organisations ▪ Teaching formally and informally

As I work within the field of post-registration education, the findings of the study will be utilised for the development of new educational provision on the deteriorating adult patient. I have already commenced a collaborative project with a local NHS Trust, called 'Assessment beyond NEWS' which is a post-registration educational programme for RNs based on the development of all four stages of clinical judgement. The competency-based assessment is guided by the competency framework for registered practitioners' level 1 and enhanced care areas (NOrF and the Critical Care Network National Leads, 2021). This project will be evaluated exploring the impact of the educational provision on the clinical judgment skills of RNs and results disseminated through report and publication.

As a post-doctoral researcher and alongside the dissemination and educational activities above, I plan to extend this study building on the experiences of RNs to those of the HCA workforce, one of the studies identified in section 7.6. Pursuing this as the first priority recognises that with an expanding gap in the RN workforce (NHS Digital, 2022) the HCA workforce will continue to undertake the bulk of vital sign monitoring. Pinch point one in this study revealed a risk for patient safety aligned to the HCA workforce with significant implications at this early stage in the process of recognition of deterioration. There are very few studies that explore the role of HCAs in the use of NEWS or the use of clinical judgement within this group of the workforce. Deeper understanding of the HCA experiences and perceptions will enable greater recognition of how this workforce can be supported to recognise

deterioration and act effectively upon their findings, supporting RNs with confidence in delegation.

7.8 Concluding statement

As described by NHS England (2019, p.6) "*patient safety is about maximising the things that go right and minimising the things that go wrong"*. A strength of this study is that it places clinical practice at its heart, underpinned by the fact that, as the researcher, I am also a Registered Nurse and educator. This research study is unique in both the approach taken and being the first to explore experiences and perceptions of nurses using NEWS.

In 2019-20, there were 141,000 hospital in-patient beds in England (Kings Fund, 2021). The potential impact of the risks identified applies to each of those in-patient beds. The NEWS score should be calculated every 12 hours for every in-patient as a minimum (RCP, 2017) with the frequency increasing as indicated either by the score or according to clinical judgement. That equates to a minimum of 282,000 NEWS measurements each day. Three 'pinch points' have been identified, each of which represents a moment in time where, if the wrong clinical judgement is made, the patient could deteriorate and suffer serious, avoidable harm. Every time that NEWS is used with a patient, one, two or all three of these pinch points could operate.

Therefore, this study contributes significant understanding to the ongoing safe use of NEWS and factors impacting the recognition of patient deterioration, revealing where the patient safety risks lie as a starting point for improving early recognition and management of deterioration. Encouraging a workplace culture which supports all nurses to engage with the four stages of Tanner's clinical judgement model whenever they are carrying out NEWS offers potential to save lives, developing and empowering nurses to make appropriate clinical decisions.

To achieve this, the nursing profession and health service need to:

- address education gaps in the registered/unregistered nursing workforce relating to the recognition and management of deteriorating patients, to ensure safe use of NEWS;
- foster a culture that supports, values and develops nurses' clinical judgment to enhance patient safety.

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9 Appendices

Appendix one: Example of early scoping review

	Author	Title	Year	Qualitative/ Quantitative	Topic	Quality	Limitations
1.	Douw. G, Huisman de Waal. G, RH Van Zanten. A, G van der Hoeven. J, Schoonhoven. L	Capturing early signs of deterioration: the dutch-early-nurse-worry- indicator-score and its value in the Rapid Response System	2016	Quantitative	Early Nurse Worry Indicator Score	High Quality	Single Centre study without exploration into use of the tool introduced
2.	Ansell, H., Meyer, A. and Thompson, S.	Technology and the issues facing nursing assessment.	2015	Qualitative	Looking at nursing practice around respiratory rates	Medium Quality	Relatively small sample group. Single centre study No reflexivity within paper.
3.	Al-Kalaldeh, M., Suleiman, K., Abu-Shahroor, L. and Al-Mawajdah, H.	The impact of introducing the Modified Early Warning Score 'MEWS' on emergency nurses' perceived role and self-efficacy: A quasi-experimental study	2019	Quantitative	Educational Intervention with introduction of MEWS and impact on nurses	Medium quality	Uses a tool created for nurse practitioners, who undertake autonomous roles.
4.	Bedoya, A. D., Clement, M. E., Phelan, M., Steorts, R. C., O'Brien, C. and Goldstein, B. A.	Minimal Impact of Implemented Early Warning Score and Best Practice Alert for Patient Deterioration	2019	Quantitative	Introduction of NEWS into EHR and nurse escalation	High Quality	AS completed over one year, patient demographics in 2 groups not the same. And assumes similar deterioration patterns across demographics, diagnoses, and objective data. No human factors
5.	Bigham, B. L., Chan, T., Skitch, S. and Fox-Robichaud, A.	Attitudes of emergency department physicians and nurses toward implementation of an early warning score to identify critically ill patients: Qualitative explanations for failed implementation	2019	Qualitative			
6.	Bunkenborg, G., Poulsen, I., Samuelson, K., Ladelund, S. and Åkeson, J.	Mandatory early warning scoring-implementation evaluated with a mixed-methods approach	2016	Mixed Methods	Implementation of Mandatory MEWS and compliance	Medium quality	Single centred study. Both methods of data collection were not linked. Quantitative focused on compliance, qualitative on implementation process.
7.	Burns, K. A., Reber, T., Theodore, K., Welch, B., Roy, D. and Siedlecki, S. L. (	Enhanced Early Warning System Impact on Nursing Practice: A phenomenological study	2018	Qualitative	Determine how an enhanced early warning system has an impact on nursing practice.		Potential for interviewer bias acknowledged EWS in study was unique to that hospital
8.	Cardona-Morrell, M., Prgomet, M., Lake, R., Nicholson, M., Harrison, R., Long, J., Westbrook, J., Braithwaite, J. and Hillman, K.	Vital signs monitoring and nurse–patient interaction: A qualitative observational study of hospital practice	2016	Quantitative	To establish a profile of nurses' vital signs monitoring practices, related dialogue, and adherence to health service protocol in New South Wales, Australia.	High Quality	Single centre study – limited by the quantitative approach taken which lacks exploration of reasons for compliance in vital sign monitoring NOT EWS so REMOVE FROM SEARCH

Appendix two: Data extraction table – Rapid review

Author	Country of origin Year data collected	Aim	Study design	Track and Trigger system	Sample and setting	Findings	Methodological Considerations	RAG (out of 18)
Ansell *et al.* (2015)	New Zealand 2011	Exploration of nursing practice around respiratory rates and impact of technology on autonomous nursing practice	Qualitative descriptive exploratory research using interviews	EWS	n=10 registered nurses working in 3 adult wards in NZ	Electronic recording helps nurses who have an increasing reliance on tech Nurses have less need to spend time with patients with technology Fob watch replaced by mobile phone EWS improved taking & recording of RR Reversion to Task orientated nursing Nurses focus on meeting organisational compliance not patient outcomes Nurses mistrust scores and disregard EWS protocol EWS undermines nurse autonomy	Single centre study One of few studies considering impact of technology. Appropriate methodology Verbatims used well in findings Ethics considered and reported EWS not used in all wards – only applicable to 3 nurses – limits findings Relatively small sample group. No reflexivity within paper. No discussion of rigour expected in qualitative study	15

						Prescriptive algorithms take nurses away from critical appraisal and decision making		
Bigham *et al.* (2019)	Canada 2015	To elucidate nurse and physician perceptions with the Hamilton Early Warning Score (HEWS) in combination with the Canadian Triage Acuity Scale.	Qualitative Grounded theory study of healthcare professionals in ED perceptions of the use of EWS in identifying sepsis. Semi structured interviews Constant Comparative analysis	HEWS	n=12 5 nurses, 3 residents and 4 attending physicians working in ED in one hospital	Vital sign accuracy perceived to be high Participants admitted to estimating RR and temperature where they had no clinical concern Participants believe they were experts in sepsis identification and that EWS did not add value EWS led to cultural conflict and the standardisation was unnecessary Staff did not understand science behind score HEWS was perceived as too rigid	Single centred study. Mixed sample so different perspectives but not fully explored or compared. Specific to Sepsis in ED so lower transferability to other areas. Conducted by physicians working in institutions Potential for sampling bias Lacks consideration of interviewer-participant relationship Analysis included 3 roles – robust Confirms conflict in use of EWS Reporting limited in various areas.	13
Bunkenborg *et al.* (2016)	Sweden 2009-2011	To evaluate adherence to an intervention optimizing in-hospital monitoring practice, by	Mixed Methods Quantitative data - pre and post intervention (modified in-hospital monitoring practice	MEWS	n=4 interviewed (ward managers and opinion leaders) 4 wards, one hospital	Statistically significant high levels of adherence for MEWS 0-1 with an improvement of bedside monitoring post-intervention ($p < 0.001$) in	Single centred study. Clear study design and rich discussion of intervention, study setting	12

		introducing early warning scoring (EWS) of vital parameters.	based on mandatory and structured bedside measurements and assessments of vital parame- ters according to the MEWS system. Intervention included teaching, knowledge sharing, development of opinion leaders and weekly feedback. Quantitative arm focused on a comparison of time intervals between scoring of vital parameters. Qualitative arm – semi structured interviews undertaken over 8 weeks			respect of heart rate, blood pressure and temperature. Compliance with intervals for recording for higher MEWS scores were improved post-intervention (no statistical significance) - continued to show low levels of compliance to the track and trigger element of the MEWS. MEWS 2-4 showed the lowest staff adherence to the bedside algorithm Paper based EWS used Interviews thematic analysis – 1 theme Motivation by clinical relevance and meaningfulness Motivation achieved from the clinical relevance and meaningfulness of the process of implementation, rather than in relation to the actual tool Conclusions suggest the use of nurse's clinical judgement in in cases where MEWS is slightly raised, there is little data to support this claim	Quantitative focused on compliance to EWS. Qualitative on implementation process. Lacks integration of methods - does not gain triangulation of the data. Only 4 interviews undertaken with nurse managers Emphasis on quantitative data element openly discussed Researcher openly admitted her dual role as interviewer and investigator	

Burns, *et al.* (2018)	US 2015	Determine how an enhanced early warning system has an impact on nursing practice.	Qualitative Descriptive phenomenological methodology Semi structures interviews in 2015. Scripted interview protocol used – 2 questions. Analysed by group of researchers and thematic analysis	EWS	n=25 registered nurses from a community hospital using the enhanced EWS. Purposive sampling	EWS positively perceived by nurses EWS increased awareness of changes and resulted in a timelier response EWS creative a proactive culture Prioritization using EWS EWS made people more accountable through us of a colour coded system	Single centred study. Rich description of stages of the research process Potential for interviewer bias acknowledged however had taken multiple steps to minimise this Analysis undertaken by team of researchers. In-depth consideration of trustworthiness, validity and reliability EWS in study was unique to that hospital	18
Chua *et al.* (2019)	Singapore 2016-2017	To conduct an exploration of the experiences of enrolled and registered nurses in recognizing clinically deteriorating patients in general wards.	A qualitative, descriptive design using individual semi-structured Interviews. 1,000-bed acute general public hospital in Singapore.	EWS	n=22 registered nurses (n=8) and enrolled nurses (n=14) All had at least 6 months experience. Purposive sample using maximum variation sampling for number of years	Knowing the patient and knowing through past experience important More experienced nurses shared their beliefs that they sensed when something was not right putting this ability down to experience in general or experience of a similar situation in the past or pattern recognition	Single centred study. Rich description of the setting, the recruitment process and the contextualisation of the background of the sample Specific to enrolled and registered nurses, so less applicable to U.K. however may reflect the new emerging level of nursing associate and registered nurse	18

					of nursing experience and ward specialty	Importance of continuity of care in recognition. Nurses tended to consult each other for advice through the hierarchies Nurses viewed more complex physical assessments as the role of the doctor despite having been taught them. Delegation of vital sign recording was commonplace with ENs undertaking them causing frustration when abnormalities were not escalated efficiently and the focus of ENs on single parameters rather than the big picture.	Thorough consideration of rigour/credibility using Lincoln and Guba	
Dalton *et al.* (2018)	U.K. 2016	Generic qualitative study to discover what factors influence the nurse's assessment of patient acuity and	Qualitative – semi structured interviews conducted between March-April 2016. Interviewed by	MEWS	n=10 registered nurses from inpatient medical and surgical wards working in an acute NHS trust. Purposeful sampling.	Potential culture of blame made nurses cautious about their autonomy and accountability Passing the buck mentality through escalation MEWS convenient in aiding clinical decision making and	Single centred study. Exclusion criteria - newly qualified nurses. Inclusion criteria 2 + years' experience but interviewed 3 with less than 2 years' experience. Generally high quality but lacks discussion around rigour within	16

		response to acute deterioration.	nurse researcher for PhD.			relinquishment of responsibility in protocol Escalation focus on numeracy with MEWS MEWS was seen as the vehicle to successful escalation when triggering however did not help when nurse concern was higher than MEWS	the research and no discussion on limitations. Findings well-presented and discussed. Implications for practice evident	
Ede *et al*. (2020)	U.K. No date	To map the barriers and facilitators to the escalation of care in the acute ward setting and identify those that are modifiable	Observation with ad-hoc semi-structured interviews across 12 wards, 2 sites in one hospital trust. Included both HCAs and RNs.	EWS	55 Hours of observation	Study was focused on escalation but reported one theme involving EWS. HCAs undertook bulk set of observations Variation in EWS practices across wards EWS lacked sensitivity – nurses used their professional judgement before following protocol leading to inconsistency in escalation compliance . EWS were just one factor in decision making	No sample size Findings not reported in relation to RNs and HCAs so no comparison Single centre study Rich description regarding methodology including reflexivity and Rigour. Ethical approval not required as was seen as service evaluation. Highlights a gap in the evidence between EWS and clinical judgement	15

						Frequency of observation deviated from protocol Observations were reported in a 'tokenistic' manner to 'tick a box' Omissions of escalation were observed		
Endacott & Donohue (2010)	U.K. 2006-2007	To examine ward nurse and critical care outreach staff perceptions of the management of patients who deteriorate in acute wards	Qualitative Critical incident technique – semi structured interviews. A CI was deterioration of a patient from level 1 to level 2 or level 3 resulting in a call to the critical care outreach service.	MEWS	n=14 11 ward based nurses. 3 members of CCOT. Working in medical and surgical wards of one District General Hospital in U.K.	CCOT suggest nurses' lack of evidence and knowledge of the patient during escalation Nurses reported confidence in the CCOT Multiple and varied approaches to escalation used by nurses which lacked consistency Upon arrival of CCOT ward nurses passed overall responsibility for decision making to the outreach team. Highlighted issues in the ability of nurses to make assessments and clinical judgements	Single centre study. Small but in-depth study. Relied on incidents that had involved CCOT. Didn't consider other factors impacting on use of MEWS. Ethical approval unclear	11
Foley & Dowling (2019)	Eire No date	Holistic single descriptive case study design to describe how nurses use the	Mixed Methods - single case study. Data collection through non-participant	EWS	n=11 observed (9 nurses, 2 HCAs) n=8 RNs interviewed	EWS is task driven EWS was not viewed as a tool for patient assessment but the score for how sick a patient was	Single centre and single case study – impacting transferability. Nurses were observed so may have affected how they	16

		EWS in an acute medical ward	observation, semi-structured interviews and documentary analysis. Paper EWS charts in place. The unit of analysis - acute medical short stay ward (15 beds) in a large regional hospital in Eire.			Nurses did not view trends and often missed signs Nurses needed to be prompted for more information at escalation Lack of responsibility for parameter adjustment Conflicts between EWS protocol and clinical judgement Nurses did not maintain compliance with escalation where their judgement conflicted Poor completion of paper charts	performed. Lack of discussion in reflexivity of influence of researcher. Study took place at busy time where nurses had capacity issues and practice was influenced by workload. Highlights the need for behavioural change, training and cultural shift for compliance	
Hope *et al.(2019)*	U.K. 2016	Qualitative interpretative study to explore the impact of using electronic data in performance management to improve nursing compliance with a protocol.	Qualitative interpretative study using semi structured interviews. Part of a wider study exploring diurnal variation in vital signs following introduction of EWS within a bedside handheld	EWS	n=17 (13 registered nurses, 2 student nurses, 2 support workers). Working across specialities. 0-30 years' experience. Recruited through a survey.	Pre – measures nurses reported competing demands impacting compliance with EWS protocol. Nurses reported omissions, partial completion and variations to vital signs practice to avoid waking patients. Nurses reported benefits of system reminders. EWS used to explore reasons why a patient was unwell. Where EWS was perceived as	Single centre study. Lack of consideration of rigour. Some limitations are highlighted by authors but not including influence of researcher on participants at interview Needs to be set in the context of the larger study to see the impact – from where information on data compliance was drawn	16

			device. Undertaken in hospital in the South of England. Focused on compliance with EWS when using bedside electronic handheld device			inaccurate professional judgement led to delays or missed vital signs which resulted in red clocks. Post- measures reported reduction in omissions and reduction in time for delegation and redistribution of observations, increased patient contact time through reconsideration of patient condition. Described too short intervals but recognised this led to earlier identification. Pressure from managers to achieve high performance leading to conflict with clinical judgement and protocol labelled 'invisible noncompliance'. Suggests use of the system leads to loss of autonomy and inability to use clinical judgement	Attempted to build a deviant case sample recruiting wards with the highest and lowest night- time protocol compliance but this didn't work as not high enough numbers Large variation in length of interview (19-61 mins)	
Jensen *et al.(2019)*	Norway 2017	To explore general hospital ward nurses'	Qualitative hermeneutic study using semi structured	NEWS	n=14 Registered Nurses with between 5 months	4 themes reported. 1.NEWS and clinical judgement – varying degree of trust in nurses own observations.	Study undertaken in Norway rather than U.K. Limitations acknowledged in relation to credibility, sample,	18

		experiences with the National Early Warning Score and to determine its impacts on their professionalism.	interviews one year after implementation of NEWS. Data collection took place in 2017 Explored nurses' perceptions & experiences with NEWS. Data was analysed using thematic analysis.		and 22 years' experience	Nurses valued their own assessment above NEWS, some concern that NEWS would undermine professional competence. 2.Responding to the NEWS standard – some participants felt NEWS did not change their perceived responsibility but others felt it reduced it with a disclaimer offered by NEWS. NEWS was viewed as a task. 3 Involving the professional community -ISBAR used for escalation to Drs. NEWS made decisions easier and gave nurses confidence. NEWS perceived as a useful tool for novice nurses. 4 Adjusting the tool – NEWS difficult to use on patients with habitual vital sign deviation. Whilst adjustment an option, it was hard to agree with Drs. NEWS delayed if other priorities existed or clinical	pressure to take part (asked by head nurse), Single centre study. Did not consider the experiences of the responders in full. Unclear if nurses are taught NEWS in UG programme Findings discussed under 'interfaces between accountabilities' and 'professional accountability' Discusses relevance to clinical practice and implications	

						judgement did not reflect NEWS. NEWS heightens awareness and increased emphasis on RR Highlights the need to enhance awareness of the use of standardised tool on RN		
Lavoie *et al.* (2020)	Canada 2017	Prospective descriptive correlational study to examine acute care nurses' judg-ments of patient risk of deterioration following a change-of-shift handoff, data collected through interviews	Mixed methods – Nurses completed a Patient Acuity Rating (PAR) which was compared with computerised EWS followed by focus groups at the end of the study. Total of 16 focus groups held. Focus group transcripts thematically analysed.	EWS	n=44 across 16 focus groups.	Findings are limited to quantitative arm of the study. Correlation of nurses judgement with EWS is higher on surgical wards – suggesting nurses are more familiar with similar criteria Medical nurses doubted the predictability of deterioration which may reflect a doubt of EWS. Medical Nurses risk ratings were less in agreement with EWS but more in agreement with each other – suggesting a core set of cues to detect deterioration Nurses agreement did not differ based on experience or educational level.	Part of a larger study Clear sampling strategy however the convenience sample may not be representative. Audit trail throughout analysis – conducted by 2 researchers. Whilst methods are integrated, reporting on the focus groups is limited.	11

Mackintosh *et al.* (2014)	U.K. 2009	Exploration of social and institutional processes associated with the practice of rescue, and implications for the implementation and effectiveness of rapid response systems (RRSs) within acute health care.	Ethnographic study undertaken in 2009 in 2 U.K. tertiary hospitals through observation and interviews with hospital staff. Each hospital had a different RRS. One with standardised EWS and CCOT. Other with variety of EWS, piloting an electronic system to replace paper charts, but no CCOT	EWS	180hrs observation 35 interviews. Data collection included various levels of medical staff, HCAs, RNs, and lawyer.	Undertaking of vital signs delegated to HCAs, EWS offered an additional safety net to this practice legitimising division of labour HCAs discussed the concept of knowing the patient and identifying changes through recognition of soft signs often being the first to identify the changes EWS was recognised to both enable and constrain escalation of care with calls for help without supporting EWS labelling nurses as over-reactive Compliance with EWS reported at higher level nurse meetings, with audit charts displayed publicly on ward corridors – compliance issues being dealt with at ward level Breaches of protocol normalised at busy times by senior nurses	Large study, reporting possibly limited by length of paper. Study sample included wide range of healthcare professionals and larger proportions focused on medical team. No limitations discussed within the study Rich description of the setting. Lacks reflexivity or consideration of the impact of the research team on the study Results are reported mixed with aspects from the evidence base, difficult to ascertain which are findings of the study. Early study including electronic EWS Two centre study	13

McDonnell *et al*.(2013)	U.K. 2009	To evaluate the impact of a new model for the detection and management of deteriorating patients on knowledge and confidence of nursing staff in an acute hospital.	Mixed Methods - Single centre (DGH in U.K.) before and after study using a survey and questionnaire across 12 wards. Intervention was training session on new observation charts and T&T system. Questionnaire examined knowledge and confidence in recognition. Interviews further explored perspectives.	TTS	n=213 questionnaire n=15 interviews Mixture of UNs and RNs.	Introduction of a TTS system helped with escalation confidence Knowing the patient was important for recognition Experience and confidence contributed to decision making processes Less experienced nurses valued the TTS tool more Unregistered nurses valued and relied upon the TTS more Differences in the way that RNs and UNs utilised the score	Limited by date - Data collection took place in 2009 T&T was new so possible Hawthorne effect Paired response rate 66% Full description of sample The mixed methods approach strengthened the study reinforcing findings from either arm, offering depth of understanding and providing insights into the perceptions of nurses.	16
Petersen *et al*.(2017)	Denmark 2014	Focus Groups with nurses in Denmark to explore barriers and facilitating factors in relation	Qualitative study – no clear methodological underpinning. EWS had been implemented in	EWS	n=18 from two acute care wards – one medical (n=11), one surgical (n=7)	Generally EWS described positively for aiding clinical assessment, facilitating communication and prioritising workload.	Single centre study, some results specific to that centre – such as MET activation protocol and attitude. Highly relevant as it asks nurses for their experiences.	14

		to EWS escalation protocol.	2012, MET since 2007. 5 focus groups held to consider three questions. Interview guide used. 2 facilitators of focus groups with debriefing after.			Over-monitoring occurred as a result of concern for patient condition adding burden to Drs Less frequent monitoring occurred at busy times and nights. EWS 3-6 considered low risk and protocol not followed particularly in busy times Nurses reluctant to call MET mainly due to perceived negative attitude of members of MET	MET review mandated at EWS 3-5 (lower than in U.K.) Potential participants nominated by head nurse of ward – potential bias and implications for findings. Focus groups undertaken by consultant anaesthetist – included in limitations Good consideration of limitations	
Smith & Aitken (2016)	U.K. 2013	To investigate nurses' use of a single parameter track and trigger chart, the perceived barriers and facilitators to escalation to inform implementation of the National Early Warning Scoring tool.	Mixed methods service evaluation. Phase 1 audit of existing track and trigger chart over 3 weeks. Phase 2 questionnaire to assess self-reported knowledge and practice	NEWS	Phase 1 -Audit undertaken over 3 weeks across 4 wards including 74 triggering patients Phase 2 – questionnaires returned by 11 RNs (35%), 7 Student nurses (23%) and 13 HCAs (42%)	Phase 1 identified a trend between age and repeat monitoring after a physiological trigger. Identified a trend between age and repeat monitoring after a physiological trigger. Phase 2 – 5 Knowledge question were correctly answered by 76% RNs, 80% student nurses and 66% for HCAs.	Single centre Low response rate to questionnaires and incomplete questionnaires Acknowledgment that further exploration of themes was needed. Analysis of questionnaires limited to single researcher	16

						4 themes from open ended responses : 1 Equipment – lack of equipment and faulty items seen as a barrier 2 Workload – high workload and lack of availability of senior staff 3 Expectations from staff – conflicting priorities between staff, delegation of monitoring and trust issues 4 Interaction with patients – reported by student nurses only that regular monitoring disrupted patients. Possible cultural differences between wards observed		
Smith *et al.* (2021)	U.K. 2019	Exploration of barriers and enablers of recognition and response to signs of patient deterioration by	Theory driven study underpinned by the theoretical framework of behaviour change. Focused on afferent limb. Semi structured	NEWS	32 interviews – 16 RNs and 16 HCAs. 17 pre-EHR and 15 post-EHR.	Inconsistent knowledge of deteriorating patient policy and protocol Lack of knowledge on how to accurately measure Respiratory Rate and mixed knowledge of the importance of RR	Large sample size – pre and post data Influence of the researcher was considered in the limitations and its potential in bias Rigour of the study throughout and documented. Pilot interviews undertaken	18

		nursing staff in an acute hospital.	interviews with RNs and HCAs			Taking of vital signs part of the HCA role Handing of responsibility with escalation Mixed opinions on the value of escalating to the nurse in charge of the ward Nurses continued to escalate until they achieved the desired response Nurses disregarded persistently elevated NEWS Nurses looked for simple explanations for elevated NEWS disregarding or delaying escalation on this basis. Staffing and workload compliance Long delays occurred in response to escalation on nights Mixed opinions on the electronic NEWS system with some staff preferring the paper version for ease of use and interpretation	The study is part of a larger study Codebook used with audit trail Investigator triangulation Sample of interviews independently coded.	

						RNs sometimes dismissive of HCA concerns Previous experience of the CCOT influenced future escalations		
Smith *et al.(2020)*	U.K. 2019	To improve understanding of afferent limb behaviour in acute hospital ward settings, to define and specify who needs to do what differently and to report what afferent limb behaviours should be targeted in a subsequent multi-phase, theory-based, intervention development process.	Qualitative Ethnographic observational study of behaviours in the afferent arm of a rapid response system. 1st phase of a mixed method study to inform the development of a practice enhancing intervention. This phase designed to theorize the evidence – practice gap. 2 phases of data collection Jan – March 2019 (paper based)and Jan - Dec 2019 (electronic).	NEWS	2 contrasting wards in acute metropolitan hospital in England. 300hrs observation(150hrs pre EHRS and 150 hrs post EHRS) 499 discrete items of data (253 pre EHRS, 246 post EHRS)	Inconsistencies in monitoring and reporting respiratory rate Poor practice in vital sign measurement Greater accuracy in use of electronic recording system Poor documentation of accurate time in paper based systems Delays to electronic recording caused by writing them down first Increased delegation of vital sign recording to HCAs irrespective of score or patient condition HCAs neglected to escalate abnormal vital signs or when escalated further vital sign recording re-delegated	Single centre study however the sampling reflected a diversity of areas. Single researcher – however full consideration of rigour, reflexivity. Regular discussions with other members of the research team. Limitations fully discussed Ethical aspects of the study considered in-depth.	16

			Observation guide – using key moments					
Stafseth *et al.* (2016)	Norway 2012	To explore experiences of nurses implementing and using the Modified Early Warning Score (MEWS) and a Mobile Intensive Care Nurse (MICN) providing 24-hour on-call nursing support.	Qualitative Exploratory study - focus groups of nurses from 2 wards in Norway look at experiences of implementation of MEWS, a mobile intensive care nurse support an educational programme.	MEWS	n=7 registered nurses (purposive sample) interviewed in 2 focus groups	Nurses felt more comfortable escalating when quoting a score Nurses felt supported by the Mobile Intensive Care Nurse (MICN) who worked collaboratively with the nurses rather than taking over Emergence of a new precise language for nurses in escalation	Very small sample size. Sample recruited by nursing unit managers Article limited by size but diverse sample. 6 participants included in results, no verbatims from the seventh. Lacking a rationale for focus group	15
Stewart *et al.* (2014)	US	To describe the impact of the MEWS on the frequency of rapid response system activations and cardiopulmonary arrests among patients admitted to medical-surgical units.	Mixed methods Included a review of medical records before and after implementation of MEWS of RRS activations and cardiac arrests. Nurse led focus groups explored use of MEWS in	MEWS	n=11 RNs working clinically on medical surgical units included in the study. 5 focus group sessions were held with between 1-4 attendees	Major barrier was the inability to tailor MEWS to individual patient parameters. Whilst MEWS may alert nurses to a patient's condition, it alone did not trigger RRS without further assessment of the patient. MEWS may be below the trigger threshold however their own assessment would trigger RRS activation	Small study however mixed methods. Methods not integrated Does however consider how nurses use MEWS in clinical decision making Reflexive processes held after focus groups – including debriefing.	15

			clinical practice. Focus groups held by PI – semi structured interview process applied. Average 35mins discussion. Continued until data saturation. Quantitative arm analysed through descriptive statistics, t-tests and X2. Focus groups thematically analysed.			Potential conflict of following the protocol versus the nurses clinical judgement and may impact on compliance with the tool's protocols MEWS was valued as tool for interdisciplinary communication Confidence in activation of RRS without fear of ridicule was expressed as a benefit of EWS Study reported that despite nurses placing little reliance on the score alone, it was utilised in the daily bed huddle to evaluate patient acuity and to determine staffing needs		

Appendix three: Literature Review coding index example

Stewart.J, Carman. M, Spegman. A, Sabol. V.	Mixed Methods	Retrospective Review of medical records, focus groups	Evaluation of the Effect of the Modified Early Warning System on the Nurse-Led Activation of the Rapid Response System,	n=22	Acuity assessment and sta	Impact of EWS on the nursing role
Petersen, J. A., Rasmussen, L. S. and Rydahl-Hansen, S.	Qualitative	Focus groups	Barriers and facilitating factors related to use of early warning score among acute care nurses: A qualitative study	n=18	adherence	Compliance and adherence using EWS
Bunkenborg, G., Poulsen, I., Samuelson, K., Ladelund, S. and Åkeson, J.	Mixed Methods	Quantitative patient record audit Semi-structured interviews	Mandatory early warning scoring-implementation evaluated with a mixed-methods approach	n=12 (5 nurses, 3 residents and 4 attending physicians)	adherence and compliance	Compliance and adherence using EWS
Stewart.J, Carman. M, Spegman. A, Sabol. V.	Mixed Methods	Retrospective Review of medical records, focus groups	Evaluation of the Effect of the Modified Early Warning System on the Nurse-Led Activation of the Rapid Response System,	n=22	Adjusting the tool	esclalation and passing responsibility
Ansell, H., Meyer, A. and Thompson, S.	Qualitative	semi-structured telephone interviews	Technology and the issues facing nursing assessment.	n=10	Autonomy	Impact of EWS on the nursing role
Foley, C. and Dowling, M.	Mixed Methods	Non-participant observation, semi-structured interviews, documentary analysis	How do nurses use the early warning score in their practice? A case study from an acute medical unit.	(n=12) included both nurses (n=9) and H	autonomy	Impact of EWS on the nursing role
Jensen, J. K., Skår, R. and Tveit, B.	Qualitative	Semi-structured in-depth interviews	Hospital nurses' professional accountability while using the National Early Warning Score: A qualitative study with a hermeneutic design	n=14	autonomy	Impact of EWS on the nursing role
Jensen, J. K., Skår, R. and Tveit, B.	Qualitative	Semi-structured in-depth interviews	Hospital nurses' professional accountability while using the National Early Warning Score: A qualitative study with a hermeneutic design,	n=14	blame	Esclalation and passing responsibility
Donohue, L. A., Endacott, R.	Qualitative	Semi-structured interviews	Track, trigger and teamwork: communication of deterioration in acute medical and surgical wards.,	n=14	clinical judgement	Impact of EWS on the nursing role

Appendix four: Reflective diary – what is NEWS?

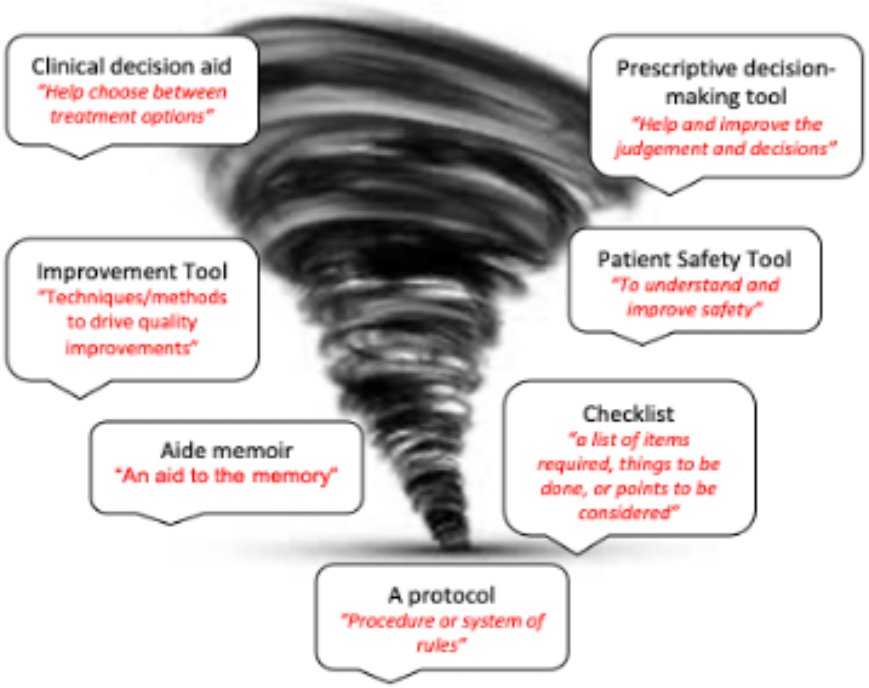
17th June 2021 Diary entry: what is NEWS?

Presented at the Doctoral session arranged by Suzanne Bench. Just undertaking the preparation for the presentation was a real eye opener on my progress with my data analysis – made me realise how superficial my analysis had been up to this point and not reflecting my methodology. In fact, I had not reached any level of interpretation but had in essence made my square research try and fit into a round whole and make everything fit into neat themes in a very unnatural way.
I watched the presentation given by ****** ***** first – a very pragmatic approach to his research was obvious but also the extent of his project which was huge. This made me feel like my project was small and insignificant and therefore nervous about then presenting. However, as I was presenting, I started to see more interpretation emerge from my project and it developed my thinking more
One of the things that I have spent considerable time on was thinking about what NEWS means to nurse – firstly what NEWS is. There is no definition of NEWS and there are multiple options. **** commented that this was not something that he had thought about in terms of his project and that this was unique to me.

Reflexivity: Development of an Underpinning theory for the study

Identifying an underpinning theory for the study brought about several internal conflicts which required deeper exploration. Having already explored my world view, I started to consider my presuppositions on the use of NEWS as an experienced registered nurse, as an educator of nurses and as a doctoral student. This brought me back to the initial stages of the process and the decision for exploring nurses use of NEWS for this study. Therefore, I entered an internal debate on what is NEWS, what underpins NEWS and my beliefs as to its position in nurse's decision-making processes. I imagined myself in the centre of a tornado, each theory of what NEWS is offering me a safety line out of the centre but fearing if I pulled the wrong line, choosing the wrong theory I would jeopardise my research or lead my study in the wrong direction. NEWS was developed by clinical consensus, not using a theoretical evidence base and therefore no quick answer was available.

The only way to exit the tornado was to decide which of these helped to identify a theory underpinning NEWS that could provide a foundation for the research study This exercise was entered with an open mind in recognition that a single theory may not apply to this study, which was predominately an exploratory study. To make sense of the situation I discussed my thoughts with colleagues that also work in the deteriorating patient field to bounce ideas off them.



NEWS – an improvement tool – or patient safety tool

A wide range of quality improvement tools have emerged across the world over the past two decades, most designed to provide models that help to structure and accelerate improvement. The Institute for Healthcare Improvement (IHI) is a recognised organisation driving a number of tools for improvement, including a patient safety essentials tool kit, which includes SBAR but no track and trigger or EWS are included. NHS England (https://www.england.nhs.uk/ourwork/clinical-policy/sepsis/nationalearlywarningscore/ 2021) describes NEWS as a tool to 'improve the detection and response to deterioration' citing both patient safety and improvement, but not as a quality improvement tool. The RCP (2012, pg. xii) and NICE (2020) describe NEWS as a 'system' to dive a 'step change improvement in safety and clinical outcomes for acutely ill patients'.

NEWS - Rule based behaviour

Rule based behaviour is where a person follows either remembered or written rules. Rules based systems limit capacity for individual discretion and decision making. EWS were designed in response to failures in care to recognise deterioration. Reason (1990) recognises a continuum between conscious and automatic behaviour recognising that conscious behaviour is knowledge based (no routine or rules available for handling situations) whereas automatic behaviour is more skills based with people undertaking routines that require minimal conscious attention. Sitting at the middle of the continuum is rule based behaviour made up of pre-packed units of behaviour when an appropriate rule is applied. Clinical algorithms for improving quality of care and patient safety may be an example of rule based systems, introduced to enhance standardisation.

NEWS – an Aide Memoire

Aide Memoires are checklists or reminders, with the translated term meaning memory aide. Aide Memoires are not specific to nursing but frequently utilised to jog the memories of nurses with regards to procedures. Despite their apparent widespread use there is limited research with regards to the use of aide-memoires in healthcare. Pearce *et al*. (2019) researched the introduction of an aide-memoire for junior doctors studying their perceived preparedness for ward rounds, reporting an increased sense of preparedness with the aide-memoire but without statistical interpretation of the results. Anecdotal evidence on the use of aide-memoires in nursing would suggest that they provide a reminder of tasks to complete, primariy for people new to a role or area and are used informally rather than being protocol driven. This is therefore not representative of NEWS.

NEWS- A checklist?

In healthcare checklists have often been provided as the solution to a vast number of patient safety and quality issues since the seminal studies by Gawande and Pronovost (Catchpole and Russ, 2015). The origin of the checklist sits in aircraft industry, interestingly developed to aid pilots in flying the new complex Boeing 17, its successful implementation heralded as instrumental in the success of the second world war. Gawande (2011), one of the early adopters and supporters of checklists believes that checklists minimise basic mistakes and save patients life, discusses the use of checklists in healthcare. However there is a caveat as to the appropriateness of checklists with failure is driven by ineffective checklists which leads to them not being used properly.

Most frequently cited checklist in healthcare are the WHO surgical checklist and the catheter-related blood stream infections (CLABSIs) checklist. Neither of these are reported without issues. In the U.K. the surgical checklist was widely promoted for its use to eliminate surgical never events. However NHS Improvement (2017) reported 139 wrong site surgeries, 46 wrong implant or prothesis incidents and 88 retained foreign objects. This leads to questions regarding implementation of checklists which requires a focus upon both organisational culture and workflow. The catheter-related blood stream infections (CLABSIs) checklist showed Impressive reductions in catheter-related blood stream infections however multiple interventions addressing ICU safety were implemented at the same time, so the results cannot be solely attributed to the checklist alone. (Levy SM, Senter CE, Hawkins RB, *et al*. 2012).

Thomassen *et al*. (2011) undertook a qualitative study using interviews followed by a Delphi approach to explore experiences of checklist development and implementation in a group of non-medical high reliability organisations. The results are highly applicable to the introduction of EWS. Participants were clear that a checklist is a tool, not a goal, having been designed for a predefined problem but ensuring that the user should not feel deprived of the opportunity to apply common sense. The research reported the importance of stakeholder involvement in the development and implementation of the checklist. NEWS was developed on a national level …… and the details of the release specify that it is not a replacement for clinical decisions making, however it appears to have been adopted as such leading to conflicts with clinical judgement and detracting nurses from their ability

to make common sense decisions. Clinicians may be discouraged from acting in a manner that is best for the patient if they perceive that they may be censured for not following the procedure 'to the letter'. A checklist is not a clinical crutch and is not a substitute for clinical decision making. It is underpinned by a good level of knowledge and understanding.

Williams and Colligan (2015) suggest that checklists might be better reserved for processes that are simple, easy to follow, standardised and (perhaps) time critical. Maxwell (2018) discussed that the potential of NEWS needs to be realised by leaders and managers who should understand the assumptions behind it and ensure that the tool is a 'dynamic decision aid' rather than checklist.

NEWS – a tool to support clinical decision making or clinical judgement

HSIB (2020) suggests that a EWS is a guide used by clinicians to help alert them to potential deterioration and should be used alongside clinical judgement, citing their 2019 study which reported EWS could provide a false reassurance to staff working in busy and complex environments. The RCP (2012) were clear in the fact that NEWS was designed as a tool to support clinical decision making, not to replace it. What is not clear is are nurses making a judgement or is the tool making the judgement for them? Has NEWS taken the stage of judgement and interpretation away from nurses. Judgement means integrating the different aspects of information to arrive at an evaluation – so taking visual prompts (appearance) , vital signs, behaviour to make an assessment of patient status. That judgement then feeds into decision making.

NEWS is a tool developed by Drs for use by Nurses – how do I explore this more?

NEWS and models of clinical decision making

In nursing, there are a number of clinical decision-making models discussed within the literature however the main focus lies on two models. First the information-processing model, based on the hypothetico-deductive approach, described in Thompson (1999) as a four stage model involving cue, hypothesis/judgement, decision and evaluation. Banning (2008) discusses the use of decision-making trees in this approach as a useful technique to support decision making. This level of analysis allows decisions to be examined in more detail, exploring the evidence, and providing rationale for decisions. NEWS does not offer this level of exploration nor encourage discussion and debate, therefore can be ruled out as a decision-making tree. The second approach to decision making is intuitive-humanist,

described by Benner and Tanner, (1987) as understanding without rationale but focused on intuition in the judgment and decision making processes. One of the main findings of literature review suggests that NEWS does not support the use of intuition in nurses and therefore discredits this type of clinical decision making as a theory underpinning nurses use of NEWS.

NEWS: a Prescriptive decision making tool ?

In terms of clinical decision making theory, the theory that fits NEWS the best would be application of the prescriptive theory of clinical decision-making. Established by Bell *et al*. (1982) as a third philosophical stance, prescriptive theory challenged the dichotomy of normative and descriptive theories. The underpinning aim of this approach to clinical decision making was to help and improve the judgement and decisions made by people. Shaban (2005) recognised the role of decision trees in prescriptive modelling in medicine to improve decision making, citing examples of clinical guidelines and protocols as examples of prescriptive models to improve quality of care or standardising care. The Royal College of Physicians (2017, p8) suggested the introduction of NEWS to "to standardise the approach to detecting and grading the severity of acute illness". A vast amount of the research evidence on EWS focuses on the ability of the tool to predict deterioration and patient outcomes, such as unplanned ICU admission or mortality, suggesting that NEWS is a prescriptive decision-making tool based on what's likely to happen or an algorithm which offers optimality to decision making.

Whilst Watkins (2020) recognised the use of structured assessment tools in the decision making process to reduce margin of error and improve outcome, Ansell *et al* (2015) recognised the increasing use and reliance of nurses on technological and prescriptive algorithms for patient care. It is widely recognised that decision making causes perceived stress which hampers decisions - the use of tools therefore may offer decision making without the associated emotion and uncertainty. Tools such as NEWS may therefore help with confidence and remove the degree of uncertainty for those nurses with less confidence. Use of prescriptive theoretical approaches have been criticised because they limit the ability for interpretation (Shaban, 2005). This was supported by Courtney and McCutcheon (2009) who suggested that limiting decision making through clinical guidelines would result in erroneous outcomes however those clinical decisions could be enriched by use of normative theory and exploration of the evidence base.

Appendix five: Extracts from researcher diary

Diary 6th July 2020 Analysis- Early thoughts

In line with the chosen methodology, analysis starts during the interview, with exploration and deeper understanding of the experiences and interpretation of these. Hycner (1999) discusses the process of explication rather than using the term analysis stating that this stage requires investigation of the constituents of a phenomenon while keeping the context of the whole. Interviews will be transcribed verbatim directly following each interview by the researcher to ensure full details of the interpretation are recorded. Interviewees will be given pseudonyms for the purpose of the transcriptions and upon analysis the researcher will look for any identifying information which may lead to a breech in confidentiality. Petrova *et al.* (2016) suggests that the inclusion of biographical data in small samples may impact on confidentiality and reveal personal identity, sensitive consideration of this will be taken in publishing of results. Transcriptions will be correlated with the field notes to assist with analysis and then analysed individually by the researcher. Coffey and Atkinson (1996) describe analysis of phenomenological data as a systematic process which identifies the essential features and relationships, transforming the data through interpretation.

Before Data collection

Analysis started before data collection with analysis of own presuppositions, values, and beliefs around subject

These thoughts were further explored through discussions with peers that are immersed in this world too

During Data Collection

Each interview formed part of the analysis in many ways

Further developed my thoughts – reflection on each interview

Changed interview questions

Reflected on style of interviews

After data collection

Process of transcribing the interviews- listening over and over the discussion

Initial coding of transcripts

Then go back over transcripts whilst listening to interviews again, with post transcribing reflection, considering responses and behaviours to questions

Thematic board in office developed over stages

Reflective diary throughout process

5 step process for thematic analysis - how does this apply?

Stage 1: familiarise with data, listen and re-listen to recordings. Listen to sounds and non-verbal

Stage 2: Read transcripts – mark with abstract and higher-level codes

Stage 3: Charts and summaries of interviews. Summarise transcripts using thematic framework

Stage 4: Refocus/refine codes into groupings

Stage 5: Group/regroup themes until you have a list

Data analysis – not a distinct stage in the process of undertaking the study – this emerged as the study progressed. Lack of clarity as stages of the research study started to merge. The data collection tool was aligned to the methodology.

Interviews were designed to explore the lived experience with limited structure.

Face to face allowed exploration of possible discomfort in questions, picked up by non-verbal actions.

Analysis is not a linear process, its cyclical, part cycles fulfilled before starting again.

Analysis needed a systematic approach to avoid data overload

Included self-memo – written during interviews

Reflection – written after interviews

Types of analysis – many forms of data analysis suitable for this study. One of those is IPA – which involves the analysis and identification of potential meanings behind the themes. This study is uncovering experiences, rather than meanings behind those experiences, and is in fact a pragmatic approach to exploration of perceptions and experiences

29/10/20 – Diary after supervision

After submitting my first draft of results. The results are very much on one layer – they need now multiple layers which include the underlying theory, my interpretation in line with my methodology. I need to pull together what my understanding is. With what the literature says – how does this prove or disprove the prescriptive decision-making theory.

My results somehow need to reflect the role of my interpretation – we discussed diagrammatic ways of showing this.

Decision making fatigue – is that happening in nursing? Why – what's the theory behind it?

Need to consider how my supervision changes my thoughts or progresses them as time moves along – it's an iterative process.

My action points:

Go back to prescriptive clinical decision making theory and explore this further in lie with my top level results. Need to achieve a deeper immersion
Consider how I can present the verbatims from the interviews alongside
Add to my methodology chapter – how I made the decisions and how the data collection evolved in an iterative process fo example – senior nurses, changing the questions, referring back to previous interviews
Put the verbaitms in my themes in order which rfelct the iterative processes.
Look at logic models – how might that help
Focus on one theme only and build up the layers of results, interpretation, and theory and how that gets to a new horizon.
Read other theses to get ideas of results layouts
Consider the impact that COVID-19 has had on the timeline for my thesis and the weight that it puts on nurses identifying deterioration.
Explore the concept of decision-making fatigue

Diary 16th November 2020 – is NEWS replacing clinical judgement?

Clinical Judgement

Are nurses making a judgement or is the tool making the judgement for them?

Have we taken the stage of judgement away from nurses by giving them a prescriptive decision-making tool?

What is judgement?

Integrating the different aspects of information to arrive at an evaluation – so taking visual prompts (appearance) , vital signs, behaviour to make an assessment of patient status. That judgement then feeds into decision making

Judgement is the assessment of a patient status – NEWS does this for you

Decision is the path that you decide to take

Judgements directly affect decisions.

S0 considering stages of nursing practice – where does NEWS fit in?

Nurses do assessment – then fill in NEWS

? Interpretation – does NEWS do that

? Evaluation – does NEWS do that (Puts patients into categories)

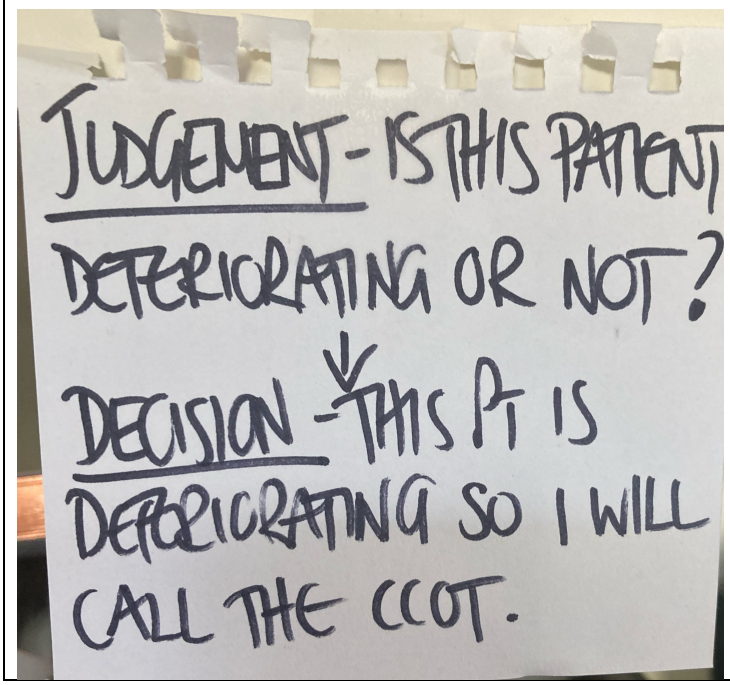
Management is the clinical decision-making stage (Is this prescriptive?)

How does Benners work fit in here?

Expert nurses use intuition

Novice nurses use rules – may therefore combine signs into a pattern?

Action: Need to remain clear on what is judgment and what id decision making



17th Feb 2021: Diary entry – lit review stage

How did I get here?

Exploration over past 4 years showed bulk of research on EWS was quantitative and revealed 2 main things:

- EWS has ability to predict deterioration
- Issues with EWS compliance which need exploring

Quantitative data unable to explain why there are issues with compliance, therefore need to explore how nurses use EWS and what impacts on this – led to focusing lit review on qualitative studies

The Question – What factors impact on nurses use of NEWS?

- Technology
- Requirement for compliance
- Conflict with clinical judgement
- Getting Help
- Poor practice?

What factors impact on nurses' use of NEWS from the lit review?

Positive factors for use of EWS	Negative factors for use of EWS
Enhances awareness and pro-activity	Seen as bureaucratic task
Helps positive response escalation when the score reflects concern	If score not high but clinical concern difficult to get help
Sometimes supports clinical judgement and intuition	Sometimes conflicts with clinical judgement and intuition
Encourages passing of responsibility	Stops nurses from making their own decisions – creates buck passing mentality
Digital systems enhance vital sign recording	Prevents nurses from escalating
EWS can enhance compliance with vital sign recording.	Does not prevent non-compliance such as RR

What isn't clear after doing the lit review

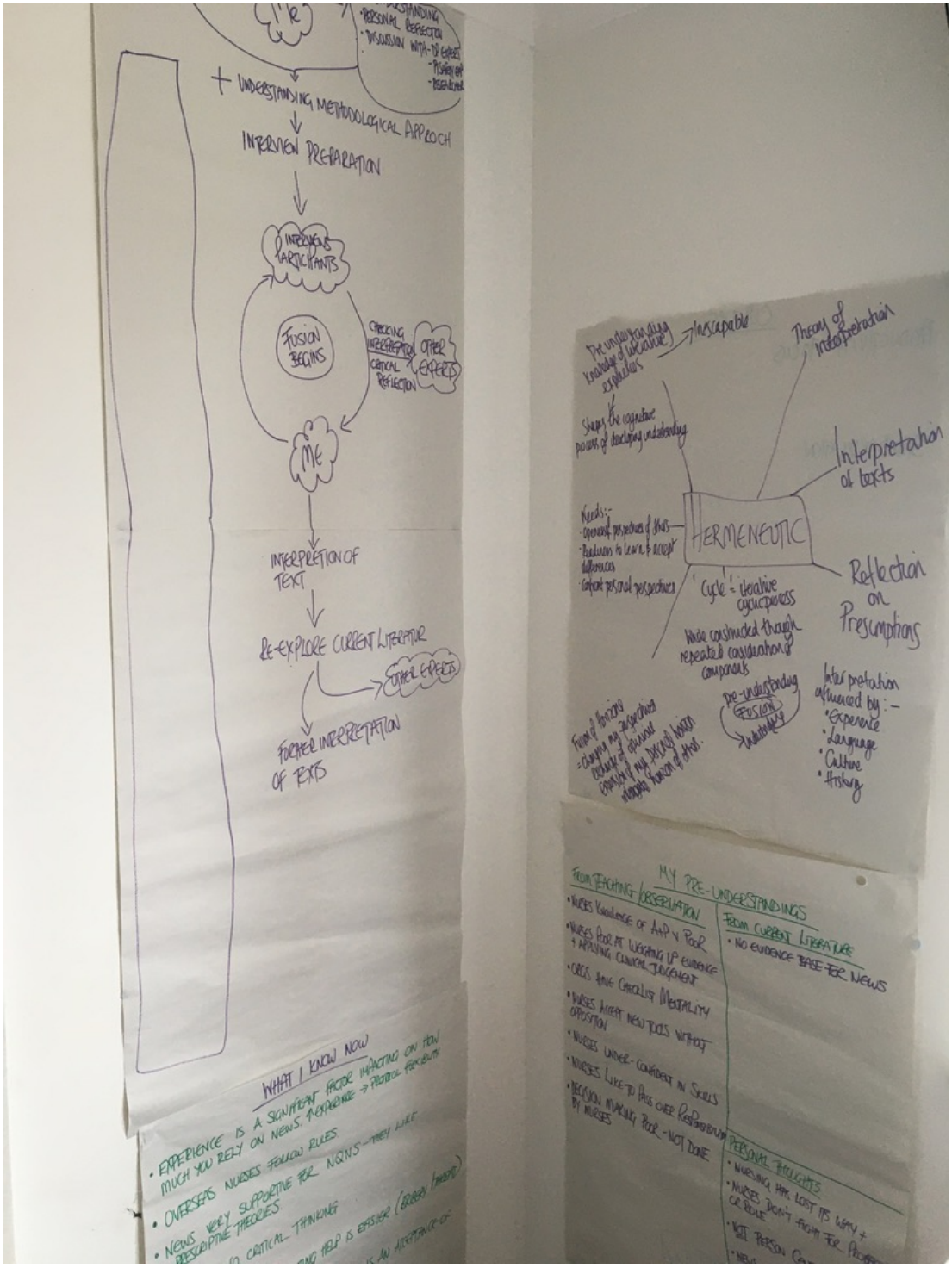
- Impact of confidence and experience on nurses' use of EWS and their clinical decision making
- Exploration of where clinical judgement takes over EWS
- How nurses balance clinical judgement and EWS

Where am I now?

I have some good data exploring nurses use of EWS – suggesting:

- Confidence has impact on use of EWS
- Difficulty balancing clinical judgment and using the tool
- Some nurses are conformists, and some aren't – cultures impacted by confidence
- EWS encourages passing the buck
- CCOT – big brother watching over you.
- Who does NEWS impact?
- Impact of the digital age on compliance and traditional nursing
- Nurses assessment of patients varies from just doing EWS to complete assessment
- NEWS can help escalation and getting help.

Appendix six: Gadamerian reflective corner



Appendix seven: Email invitation to participate

Email invitation to Participate in study

Subject of email: Invitation to take part in research exploring nurses use of NEWS

Dear (Name)

You are being invited to take part in a research study. The research is being undertaken by Claire Nadaf as part of her Professional Doctorate. The purpose of the study is to examine nurses' experiences and perceptions of using the National Early Warning Score (NEWS) to assist assessment and management of patient deterioration.

NEWS has been introduced across the UK since 2012. Although existing research confirms the ability of NEWS to identify deterioration, few studies have examined nurses' perceptions and experiences of using NEWS or explored factors which might impact its effective implementation into practice. The study consists of interviewing registered nurses from your hospital. The interviews will be conducted over several months; however your involvement will only be for the duration of your interview, which will last for 45 minutes maximum.

There is no obligation for you to take part. It is your decision. If you decide to take part, after signing a consent form, you will be interviewed, ideally on a face to face basis, in a quiet/private location at a time convenient to you. If you are unable to attend a face to face interview, alternative options will be available including telephone interviews or video conferencing (i.e. skype). There will only be you and the interviewer involved and you will be asked to reflect on your experiences of using NEWS. The interview will be audio taped.

All the information collected about you and other participants will be kept strictly confidential (subject to legal limitations).This study has received full ethical approval.

Embedded in this email is a Participant Information Sheet which offers you more information on taking part. If after reading this, you would like to participate, please reply directly to Claire by email nadafc2@lsbu.ac.ukwho will discuss the next steps with you.

Kindest regards

[redacted] research team.

Appendix eight: Participant information sheet

Participant Information Sheet

Study title: Nurses' use of a National Early Warning Score: A phenomenological study.

You are being invited to take part in a research study. Before you decide whether to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

The purpose of the study

The research is being undertaken as part of a Professional Doctorate. The purpose of the study is to examine nurses' experiences and perceptions of using the National Early Warning Score (NEWS) to assist assessment and management of patient deterioration. NEWS has been introduced across the U.K. since 2012. Although existing research confirms the ability of NEWS to identify deterioration, few studies have examined nurses' perceptions and experiences of using NEWS or explored factors which might impact its effective implementation into practice. The study consists of interviewing registered nurses from your hospital. The interviews will be conducted over several months; however your involvement will only be for the duration of your interview.

Why have I been invited to participate?

You are being invited to participate because you are a registered nurse using NEWS in an acute clinical area

The voluntary nature of participation

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. *However, once you have undertaken the interview the data (words you have spoken) can only be withdrawn up to the point of data analysis (usually around 2 weeks after the interview has taken place) as the data will be anonymised at this stage and your data will*

not be able to be identified.. If you wish to withdraw you may simply contact the researcher and state that you are withdrawing.

What will happen to me if I do decide take part?

There is no obligation for you to take part. It is your decision. If you decide to take part, after signing a consent form, you will be interviewed, ideally on a face to face basis, in a quiet/private location at a time convenient to you. If you are unable to attend a face to face interview, alternative options will be available including telephone interviews or video conferencing (i.e. skype). There will only be you and the interviewer involved and you will be asked to reflect on your experiences of using NEWS. The interview will last no longer than 45 minutes. The interview will be audio taped.

Are there any possible disadvantages or risks of taking part?

There are no foreseen risks or disadvantages of taking part, apart from the time to undertake the interview (approx. 45 mins). If you do however reveal something in the interview that has serious patient safety implications, this will be discussed with Practice Development & Clinical Support at ******Hospital.

Are there any benefits to me taking part?

There will be no direct benefits to you personally, however this research aims to allow a greater understanding of achieving earlier identification of patient deterioration in the acute clinical area and use of NEWS.

Data collection and confidentiality

All the information collected about you and other participants will be kept strictly confidential (subject to legal limitations). Data generated by the study will be retained in accordance with the University's Code of Practice. Digital recordings and records will be stored on a LSBU password protected server accessible only by the research team. Fully anonymised research data is stored on LSBU Research Open system.

For non-anonymised data (personal data) data will be stored for exactly as long as it is needed in compliance with the General Data Protection Regulations. All personal data will be kept for a period of 5 years after the completion of the project or until the end of

the project and then destroyed. No information regarding your participation in the study will be shared outside the research team.

In the write up of the study all data will be completely anonymised. No names or any identifiable information will be included.

What will happen to the results of the study?

Findings will be included within the doctoral thesis for which the study is being conducted. Results may also be published in peer-reviewed journals or presented at conferences.

Who has reviewed this study?

This study has been reviewed and approved by the Health Research Authority, LSBU School of Health and Social Care Ethics Panel and the Clinical Research Network South London.

Who to contact

For more information please contact the principal researcher

Claire Nadaf

Email:nadafc2@lsbu.ac.uk Tel: [redacted]

Or

Director of Study - Dr Louise Terry terrylm@lsbu.ac.uk

If you have any **concerns** about the way the study is conducted, please contact the Chair of the School of Health and Social Care Ethics Panel:

Dr Adele Stewart-Lord: adele.stewart-lord@lsbu.ac.uk

Thank you for taking the time to read this information and for considering taking part in this study

LSBU research Ethics Ref: ETH1819-0035

IRAS ref: 255031

V2.0 (10/2/2019)

Appendix nine: Recruitment letter

London South Bank University
EST 1892

RE: Invitation to take part in research exploring nurses use of NEWS

Dear nurses,

You are being invited to take part in a research study. The research is being undertaken by Claire Nadaf as part of her Professional Doctorate. The purpose of the study is to examine nurses' experiences and perceptions of using the National Early Warning Score (NEWS) to assist assessment and management of patient deterioration.

NEWS has been introduced across the UK since 2012. Although existing research confirms the ability of NEWS to identify deterioration, few studies have examined nurses' perceptions and experiences of using NEWS or explored factors which might impact its effective implementation into practice. The study consists of interviewing registered nurses from your hospital. The interviews will be conducted over several months, however your involvement will only be for the duration of your interview, which will last for 45 minutes maximum.

There is no obligation for you to take part. It is your decision. If you decide to take part, after signing a consent form, you will be interviewed, ideally on a face to face basis, in a quiet/private location at a time convenient to you. If you are unable to attend a face to face interview, alternative options will be available including telephone interviews or video conferencing (i.e. skype). There will only be you and the interviewer involved and you will be asked to reflect on your experiences of using NEWS. The interview will be audio taped.

All the information collected about you and other participants will be kept strictly confidential (subject to legal limitations).This study has received full ethical approval (HRA ref: 255031). Please see the inclusion and exclusion criteria for the study below.

If you would like to participate, please reply directly to Claire by email nadafc2@lsbu.ac.uk who will discuss the next steps with you.

Kindest regards

C Nadaf.

Claire Nadaf MSc BSC (Hons) RN RNT SFHEA
Professional Doctorate Student
London South Bank University

Appendix ten: Consent form

Research Project Consent Form

Full title of Project: Nurses' use of a National Early Warning Score: A phenomenological study.
Name: Claire Nadaf
Researcher Position: Professional Doctorate Student
Contact details of Researcher: nadafc2@lsbu.ac.uk Tel: 01202 968026

Taking part	Please initial in each box
I confirm that I have read and understood the information sheet and/or the researcher has explained the above study. I have had the opportunity to ask questions.	
I understand that my participation is voluntary and that I am free to withdraw at any time, without providing a reason.	
I agree to take part in the above study.	
I agree to keep all discussions confidential	

Use of my information	Please initial in each box
I understand my personal details such as phone number and address will not be revealed to people outside the project.	
I understand that my data/words may be quoted in publications, reports, posters, web pages, and other research outputs.	
I agree to the interview being audio recorded.	
I agree to the use of anonymised quotes in publications.	

Name of Participant: Date: Signature:

Name of Researcher: Date: Signature:

Project contact details for further information:

Project Supervisor: Dr Louise Terry

Phone: +44 (0)20 7815 8405

Email address: terrylm@lsbu.ac.uk

LSBU research Ethics Ref: ETH1819-0035
IRAS ref: 255031
V2.0 (10/2/2019)

Appendix eleven: Recruitment Poster

London South Bank University

EST 1892

REGISTERED NURSES NEEDED!

Are you a Registered Nurse working at [redacted] Hospital?

Do you use the National Early Warning Score in your clinical area?

Are you willing to participate in a research study exploring how nurses experiences and perceptions of the National Early Warning Score?

I am a Registered Nurse doing a Professional Doctorate and would like to interview nurses who use the National Early Warning Score.

Physiological parameter	Score						
	3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1(%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2(%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

If you think you might like to participate, please contact Claire Nadaf by email nadafc2@lsbu.ac.uk who will send you more information.

LSBU research Ethics Ref: ETH1819-0035

Appendix twelve: Interview schedule

Interview questions V2 19112019

In what year did you qualify as a registered nurse?
What band are you working at? What is the nature of your clinical area?

Understanding of NEWS

1. The purpose of NEWS
2. Do you believe NEWS helps identify any deterioration? How?
3. What do you think are the advantages/disadvantages of NEWS?
4. Do you think NEWS helps nurses to see the significance of deterioration?
5. Do you see NEWS as a checklist?

Culture of 'doing the obs'

6. Is NEWS the same as taking obs before NEWS was initiated?
7. Who does the obs on your ward?
8. Do you think that NEWS encourages people to do the observation in the right timeframe?

Education

9. How did you learn about NEWS?
10. Do you think that all grades of staff understand NEWS?
11. Do you ever think that's the NEWS score is wrong- can you give me an example?
12. Do you use the ABC DE assessment on a regular basis?
13. Do you think that experience or length of time you have been qualified is an important factor in recognising deterioration?

Electronic systems

14. Do you think that electronic systems help or hinder recognition of deterioration through NEWS?
15. Does the automatic alerting system help or hinder?

Intuition and clinical judgement

16. Do you feel that you use your intuition with recognition of deterioration?
17. Can you offer any examples of when you just know something isn't right?
18. What do you do is a patient is not triggering but you are still worried about them?
19. Do you think that NEWS encourages you to exercise your clinical judgement?
20. Element of automation with NEWS rather than exercising clinical judgement
21. Knowledge gaps for clinical decision making

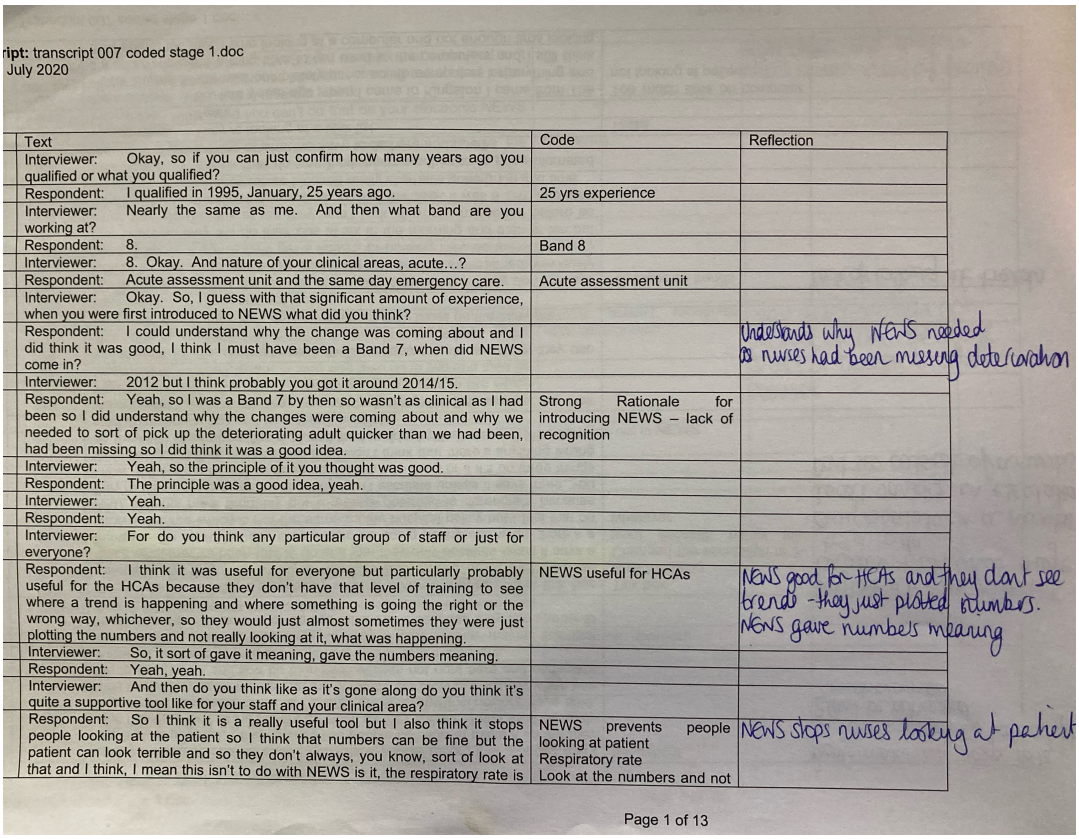
Escalation

22. If a patient triggers on the NEWS, do you always escalate because you 'have to'? Automation?
23. Do you use an escalation tool such as SBAR?
24. Why might you not escalate and why? Examples
25. What is the general response to your escalation?
26. Are there any boundaries to escalation?
27. Do you think that professional boundaries sometimes may impede escalation?
28. If you have escalated a patient, what do you do why you are waiting for the help

Overall NEWS

29. Can you think of any other positive or negative aspects of any NEWS?
30. Do you think that we rely on NEWS too much?
31. Has NEWS made people risk averse?

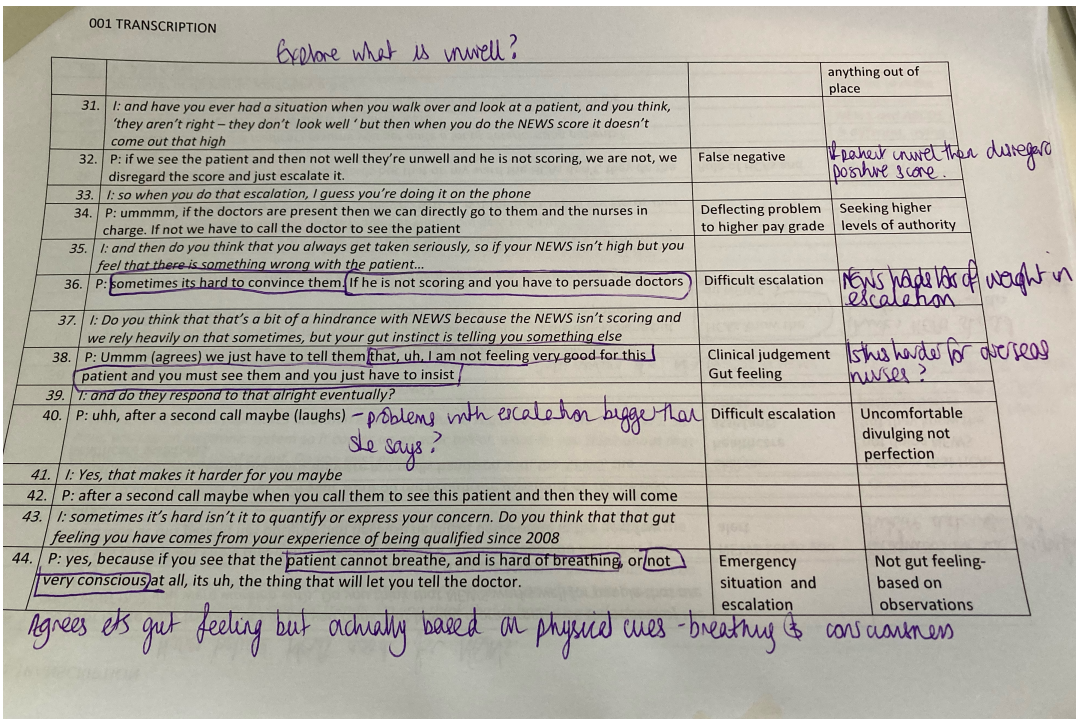
Appendix thirteen: Coding process



ript: transcript 007 coded stage 1.doc
July 2020

Text	Code	Reflection
Interviewer: Okay, so if you can just confirm how many years ago you qualified or what you qualified?		
Respondent: I qualified in 1995, January, 25 years ago.	25 yrs experience	
Interviewer: Nearly the same as me. And then what band are you working at?		
Respondent: 8.	Band 8	
Interviewer: 8. Okay. And nature of your clinical areas, acute…?		
Respondent: Acute assessment unit and the same day emergency care.	Acute assessment unit	
Interviewer: Okay. So, I guess with that significant amount of experience, when you were first introduced to NEWS what did you think?		
Respondent: I could understand why the change was coming about and I did think it was good, I think I must have been a Band 7, when did NEWS come in?		Understands why NEWS needed as nurses had been missing deterioration
Interviewer: 2012 but I think probably you got it around 2014/15.		
Respondent: Yeah, so I was a Band 7 by then so wasn't as clinical as I had been so I did understand why the changes were coming about and why we needed to sort of pick up the deteriorating adult quicker than we had been, had been missing so I did think it was a good idea.	Strong Rationale for introducing NEWS – lack of recognition	
Interviewer: Yeah, so the principle of it you thought was good.		
Respondent: The principle was a good idea, yeah.		
Interviewer: Yeah.		
Respondent: Yeah.		
Interviewer: For do you think any particular group of staff or just for everyone?		
Respondent: I think it was useful for everyone but particularly probably useful for the HCAs because they don't have that level of training to see where a trend is happening and where something is going the right or the wrong way, whichever, so they would just almost sometimes they were just plotting the numbers and not really looking at it, what was happening.	NEWS useful for HCAs	NEWS good for HCAs and they don't see trends - they just plotted numbers. NEWS gave numbers meaning
Interviewer: So, it sort of gave it meaning, gave the numbers meaning.		
Respondent: Yeah, yeah.		
Interviewer: And then do you think like as it's gone along do you think it's quite a supportive tool like for your staff and your clinical area?		
Respondent: So I think it is a really useful tool but I also think it stops people looking at the patient so I think that numbers can be fine but the patient can look terrible and so they don't always, you know, sort of look at that and I think, I mean this isn't to do with NEWS is it, the respiratory rate is	NEWS prevents people looking at patient Respiratory rate Look at the numbers and not	NEWS stops nurses looking at patient

Page 1 of 13



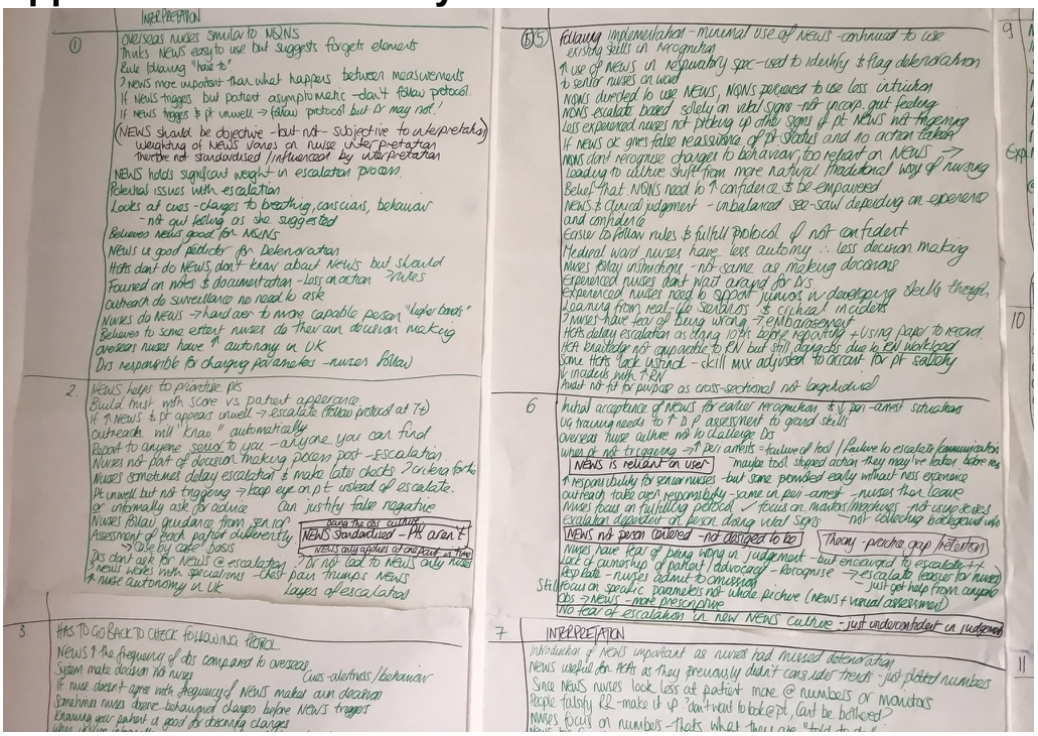
001 TRANSCRIPTION

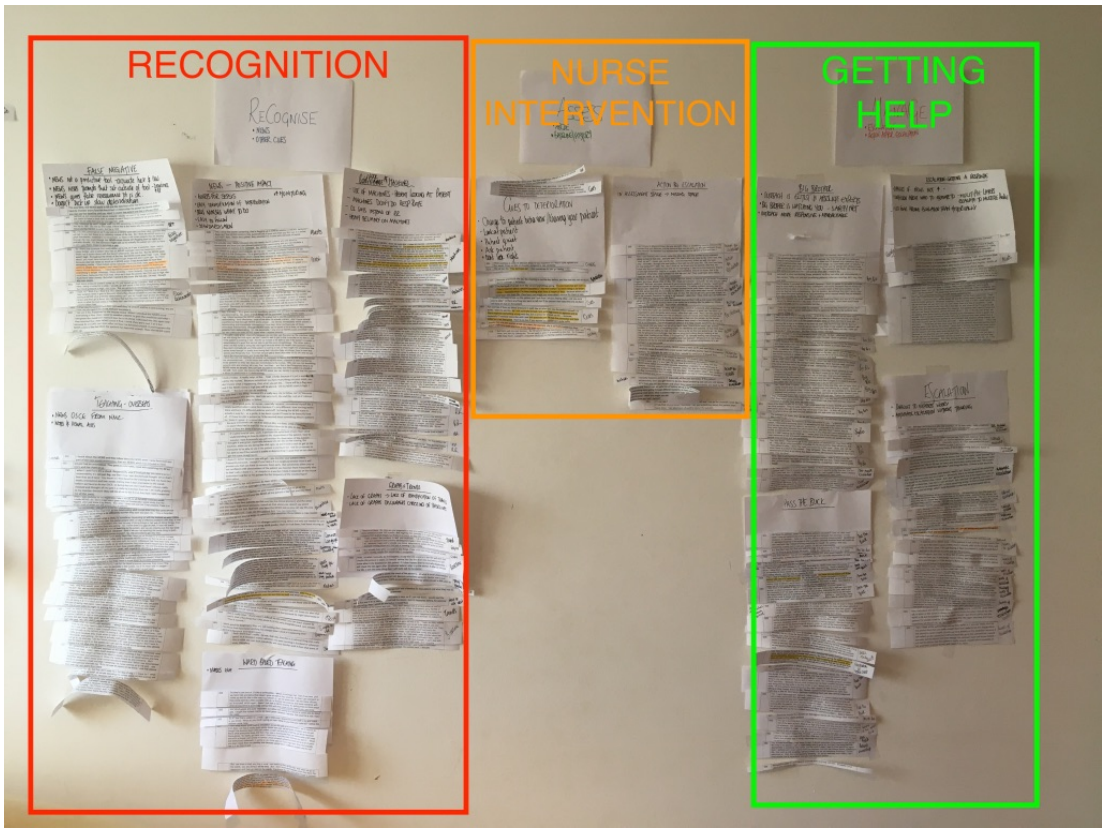
Explore what is unwell?

			anything out of place
31.	*I: and have you ever had a situation when you walk over and look at a patient, and you think, 'they aren't right – they don't look well ' but then when you do the NEWS score it doesn't come out that high*		
32.	P: if we see the patient and then not well they're unwell and he is not scoring, we are not, we disregard the score and just escalate it.	False negative	If patient unwell then disregard positive score.
33.	*I: so when you do that escalation, I guess you're doing it on the phone*		
34.	P: ummmm, if the doctors are present then we can directly go to them and the nurses in charge. If not we have to call the doctor to see the patient	Deflecting problem to higher pay grade	Seeking higher levels of authority
35.	*I: and then do you think that you always get taken seriously, so if your NEWS isn't high but you feel that there is something wrong with the patient…*		
36.	P: sometimes its hard to convince them if he is not scoring and you have to persuade doctors	Difficult escalation	NEWS holds lot of weight in escalation
37.	*I: Do you think that that's a bit of a hindrance with NEWS because the NEWS isn't scoring and we rely heavily on that sometimes, but your gut instinct is telling you something else*		
38.	P: Ummm (agrees) we just have to tell them that, uh, I am not feeling very good for this patient and you must see them and you just have to insist	Clinical judgement Gut feeling	Is this harder for overseas nurses?
39.	*I: and do they respond to that alright eventually?*		
40.	P: uhh, after a second call maybe (laughs) – problems with escalation bigger than she says?	Difficult escalation	Uncomfortable divulging not perfection
41.	*I: Yes, that makes it harder for you maybe*		
42.	P: after a second call maybe when you call them to see this patient and then they will come		
43.	*I: sometimes it's hard isn't it to quantify or express your concern. Do you think that that gut feeling you have comes from your experience of being qualified since 2008*		
44.	P: yes, because if you see that the patient cannot breathe, and is hard of breathing, or not very conscious at all, its uh, the thing that will let you tell the doctor.	Emergency situation and escalation	Not gut feeling-based on observations

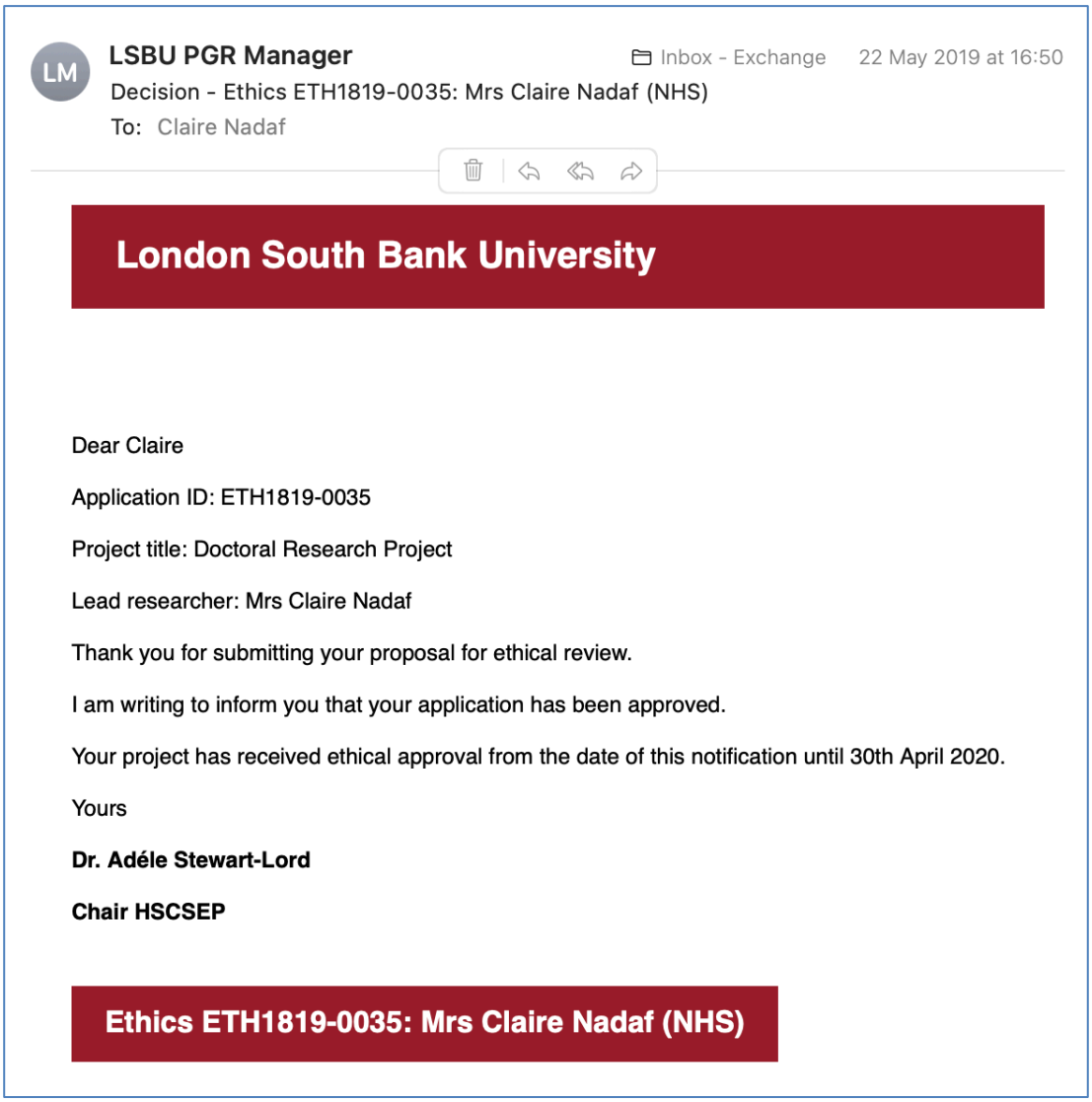
Agrees its gut feeling but actually based on physical cues - breathing & consciousness

Appendix fourteen: Analysis wall





Appendix fifteen: LSBU ethics approval



LM

LSBU PGR Manager Inbox - Exchange 22 May 2019 at 16:50

Decision - Ethics ETH1819-0035: Mrs Claire Nadaf (NHS)

To: Claire Nadaf

London South Bank University

Dear Claire

Application ID: ETH1819-0035

Project title: Doctoral Research Project

Lead researcher: Mrs Claire Nadaf

Thank you for submitting your proposal for ethical review.

I am writing to inform you that your application has been approved.

Your project has received ethical approval from the date of this notification until 30th April 2020.

Yours

Dr. Adéle Stewart-Lord

Chair HSCSEP

Ethics ETH1819-0035: Mrs Claire Nadaf (NHS)

Appendix sixteen: IRAS ethics approval

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

NHS
Health Research Authority

Mrs Claire Nadaf
Professional Doctorate Student
London South Bank University
School of Health and Social Care
103 Borough Rd
London
SE1 0AA

Email: hra.approval@nhs.net
Research-permissions@wales.nhs.uk

30 April 2019

Dear Mrs Nadaf

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**Nurses' use of a National Early Warning Score: A phenomenological study**
IRAS project ID:	**255031**
Protocol number:	**1.0**
Sponsor	**London South Bank University**

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the "Information to support study set up" section towards the end of this letter.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?
HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) have been sent to the coordinating centre of each participating nation. The relevant national coordinating function/s will contact you as appropriate.

Appendix seventeen: Letter of access

NHS
[redacted] NHS Foundation Trust
Research and Innovation Department
[redacted]

Claire Nadaf
School of Health and Social Care,
London South Bank University
103 Borough Road,
London
SE1 0AA

Date: 23/05/2019

Dear Claire

Letter of access for research at [redacted] Hospital NHS Foundation Trust

Research project:- Nurses use of NEWS scores: A Phenomenological study
Project Activities: - Interviews with Nurses

In accepting this letter, [redacted]**Hospital NHS Foundation Trust** confirms your right of access to conduct research through our organisation for the purpose and on the terms and conditions set out below. This right of access commences on **23/05/2019** and ends on **31/03/2020** unless terminated earlier in accordance with the clauses below.

Before commencing your project complete the 'New ID Request form' enclosed and arrange a time to meet the research manager to countersign the form and welcome you to the trust. you will need to call [redacted] in the Estates department on [redacted] or email [redacted] to organise collection of your ID card (ID required). A map of [redacted] Hospital is enclosed but we are happy to help direct you around the hospital if you are new to the trust.

You have a right of access to conduct your project as confirmed in writing in the letter of permission for service evaluation from [redacted] Hospital NHS Foundation Trust. Please note that you cannot start the project until the project supervisor has received a letter from us giving confirmation from [redacted] Hospital NHS Foundation Trust of their agreement to conduct the project.

The information supplied about your role in the project at [redacted] Hospital NHS Foundation Trust has been reviewed and you do not require an honorary contract with the organisation. We are satisfied that such pre-engagement checks as we consider necessary have been carried out. Evidence of checks should be available on request to [redacted] Hospital NHS Foundation Trust.