An investigation into what influences nurses’ practice to not take and record respiratory rate

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Abstract

This research sought to understand what influences Registered Nurses (RNs) to not take and record patients’ respiratory rate. It was an exploratory descriptive qualitative study based on semi-structured telephone interviews with ten RNs working in three hospitals within New Zealand. The interviews aimed to investigate their experiences around the practice of taking and recording patient respiratory rates.

The analysis of the data was guided by Thomas’s (2006) general inductive approach to thematic analysis and ten themes were identified. Overall it was concluded that the reasons why RNs do not take and record patient respiratory rates are more complex than anticipated and there are many influences that impact on the RNs decision to not complete the practice.

Four main conclusions could be made from this research. The first concerns the impact that electronic observation equipment has on the taking and recording of respiratory rate, as the use of the equipment isolates respiratory rate as the only manual vital sign. The second conclusion is that respiratory rate measures do not seem to be valued by RNs as an important vital sign. The third conclusion concerns the change in nursing practice, highlighted in the study by the reporting of constant work interruptions and time constraints placed on the RN. Also contributing to changes in nursing practice is the observation that some RNs do not regularly wear a watch to undertake the taking and recording of respiratory rate. The fourth conclusion is that, despite the introduction of EWS systems internationally, this study highlighted certain situations in which respiratory rate is not taken or recorded.

The results of the research suggest two recommendations for future nursing practice. One is that electronic observation equipment be removed from hospital wards and there be a return to manual vital sign recording. Secondly, there be a review of RN educational practices to address a lack of understanding of the respiratory function as an early indicator for detecting deterioration in a patient’s medical condition post medication administration and/or clinical procedure. Current practice appears to be putting vulnerable patients at risk.
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Abbreviations & Definitions

BP = Blood Pressure
DHB = District Health Board
EWS = Early Warning Score
HCA = Health Care Assistant
NE = Nurse Educator
NCNZ = Nursing Council of New Zealand
RN = Registered Nurse
UK = United Kingdom

Vital Signs = Blood Pressure, Pulse, Temperature, Respiratory Rate
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Chapter 1

Introduction

Respiratory rate assessment is part of a comprehensive physiological assessment of both the overall health of patients and respiratory function (Pirret, 2009). In the past twenty years there has been a plethora of research studies focusing on the impact that respiratory function has on the deteriorating patient. These research studies have highlighted that Registered Nurses (RNs) inconsistently take and record respiratory rate. The focus of this study is to understand why this might be so.

1.1 Introduction to the topic

Comprehensive assessment of patients is advocated by the Nursing Council of New Zealand (NCNZ) as best practice for good health outcomes (2007). New Zealand RNs are monitored for compliance with the Code of Conduct by NCNZ as part of their annual practicing certificate renewal requirement. The NCNZs Code of Conduct is broken into domains of practice. The framework of these domains is in the form of competencies. The NCNZ measure RNs as being competent to practice nursing by demonstrating that they meet these competencies in their nursing practice. Thus the NCNZ Code of Conduct enables RNs to demonstrate that they practice safely by aligning their nursing practice to it. There are four domains of practice; the domain that covers assessment is contained in the management of nursing care. The NCNZ (2007) competencies for RNs discuss the need for RNs to provide comprehensive assessments for their clients. Within NCNZ Domain 2, management of nursing care, the RN is required to demonstrate that she/he: “...undertakes a comprehensive and accurate nursing assessment of clients in a variety of settings” (NCNZ, 2007 p. 15).

The NCNZ define assessment as, “a systematic procedure for collecting qualitative and quantitative data to describe progress and ascertain deviations from expected outcomes and achievement” (NCNZ, 2007 p. 32).

One of the key elements of assessment is the collection of physiological data. Included in physiological data collection is vital sign taking and recording, also known as observations (West, 2006). Vital sign recording includes pulse, blood pressure (BP), temperature, oxygen saturations and respiratory rate (West, 2006). Hunter and Rawlings (2008) indicate that establishing the status of respiratory function will provide information on the status of other systems within the body, e.g. cardiovascular or neurological. Kisiel and Perkins (2006) state that the respiratory system is very sensitive to changes and will adapt the respiratory rate to compensate for any change. They go onto state that it is, “...a fundamental observation that nurses should monitor...as it is often the earliest sign of compensatory activity” (Kisiel & Perkins, 2006 p.1055). To undertake this practice, RNs are required to count a patient’s respiratory rate for one whole minute, noting the depth and pattern of the breathing as they count a (Kennedy, 2007; Massey & Meredith, 2010). Once the counting of the rate is completed, best practice advocates recording the rate on the appropriate chart. It is also the RN’s responsibility to ensure
that she/he understands the importance of these observations (Hogan 2006; Kisiel & Perkins, 2006; Kyriacos, Jelsma & Jordon, 2011).

It has been highlighted that respiratory rate is poorly recorded by RNs within the literature surrounding the introduction of track and trigger systems (McQuillan, Pilkington, Allan, Taylor, Short, Morgan, Nielsen, et al., 1998; Buist, Jarmolowski, Burton, Bernard, Waxman, & Anderson, 1999; Robb & Seddon, 2010). Track and trigger systems, also known as Early Warning Scoring Systems (EWS), were developed to identify the deteriorating patient earlier at the bedside. Respiratory dysfunction is a common rationale for those patients likely to require an elevation to high level care, such as critical care (McQuillian et al., 1998; Buist et al., 1999; Robb & Seddon 2010). The introduction of track and trigger systems into United Kingdom hospitals has highlighted the issue of RNs not consistently recording respiratory rates (Kenward et al., 2001; Ryan, Cadman & Hann, 2004; Butler-Williams, Cantrill & Maton, 2005; Smith, Fraser, Plowright, Dennington, Seymour, Oliver & MacLellan, 2008). Smith et al. (2008) noted that, prior to the introduction of Critical Care Outreach teams, education packages, and a track and trigger scoring system within their hospital, the frequency of taking and recording respiratory rate was 26%. Following the mentioned intervention Smith et al. (2008) the frequency of taking and recording respiratory rate increased to 73% within their hospital. Other studies, Butler-Williams et al. (2005) and Kenward et al. (2001), showed similar results to Smith et al. (2008) work. They noted an increase in the recording and taking of respiratory rate with the introduction of an Outreach service and a track and trigger system. Butler-Williams et al. (2005) saw a 54% increase in the taking and recording of respiratory rate.

The impact that medication and post clinical procedures have on a patient’s respiratory rate also needs to be highlighted. Some medications have side effects that can impact on the respiratory function and depress the system. Common examples of these medications are analgesia and anaesthetic agents. Pain management in surgical areas tends to be driven by systems such as Patient Controlled Analgesia (PCA). Best practice advocates for the management of patients’ receiving PCA requires frequent monitoring (Zeitz, 2005). Post-operative observations are also advocated to ensure that the patient has fully recovered from the effects of the anaesthetic, and to detect any post-operative complications (Duff, Gardiner & Barnes, 2007; Hughes, 2004). Common post-operative respiratory complications are pulmonary emboli and atelectasis or lung infections (Duff et al., 2007). Other clinical procedures, such as blood transfusion, also require frequent vital sign monitoring. This is to detect a reaction to the transfusion, in particular an anaphylactic reaction – which can involve upper airway issues and is potentially fatal (Tsang, 2008, Jevon, 2008).

1.2 Importance of the topic

Respiratory rate plays a key role in the detection of the deteriorating patient therefore it is important to understand what influences RNs to not take and record respiratory rate (Hogan, 2006). There is a large volume of research based on the incidence of not taking and recording
respiratory rate. However, the need for this research is indicated by the limited understanding about why RNs are inconsistent with taking and recording a patient’s respiratory rate. Gathering the data using a qualitative research approach enables RNs to discuss their experience and thoughts on what influences nurses to not take and record respiratory rate. This data will enable the nursing profession to understand the, “...naturally occurring social phenomena by exploring the attitudes, beliefs, meaning, values and experiences of research participants” (Schneider, Whitehead, Elliott, Lobiondo-Wood & Haber, 2007, p. 107).

Having data that indicates what influences the decision to not take and record respiratory rate will be important for nursing practice as it would support healthcare outcomes for patients in the future. The information gained from this study will be valuable for highlighting any theory to practice gaps in understanding of respiratory function and its impact on the patient. This study may also indicate a need for further resources to be available for the RNs working clinically, for example equipment. Moreover, this study will indicate what influences RNs clinical decisions to not take and record respiratory rate.

1.3 Researcher’s interest

I have been practicing as a nurse for over 20 years, and 12 of those years have been in clinical education for healthcare practitioners. My interest in the topic of what influences RNs to not take and record respiratory rate began 12 years ago with a change of role. My role change meant that I left behind Intensive Care Nursing to teach healthcare professionals their role in the detection and treatment of the deteriorating patient within an acute hospital setting. At this time I undertook a research study to review basic life support skill retention in healthcare practitioners (Castle, Garton & Kenward, 2007). This research found that experienced nurses self assessed themselves as being competent in the skill; however on formal assessment they were found to be incompetent. The conclusion of the study found that healthcare practitioners could be overconfident in their abilities but not competent in practice (Castle et al., 2007). On my transfer to New Zealand I was tasked with the introduction of an Early Warning Scoring (EWS) System within a District Health Board (DHB). During the pilot and on-going audit of observation charts I found that a majority, 54%, of observation charts did not have a respiratory rate recorded. This trend is repeated internationally with literature demonstrating low rates of compliance prior to the introduction of track and trigger systems, critical care outreach teams and education packages (see literature review). Also, whilst introducing the EWS in education sessions, RNs indicated that they do not monitor respiratory rate regularly and in some cases have not taken or recorded it at all. I was intrigued as to why RNs did not find it relevant to the patient and their nursing practice to take or record respiratory rate. There is a volume of research which demonstrates the importance of respiratory rate taking and recording as it is the first of the vital signs to change when a patient’s condition is deteriorating. Moreover, the taking and recording of respiratory rate is cited by many as being a key component of respiratory assessment. This information has led me to question why RNs do not appear to take or record respiratory rate within their nursing practice.
Whilst introducing the EWS system, I was made aware of doctors' opinions as to why RNs do not take or record respiratory rate. Doctors anecdotally cited that RNs do not take or record respiratory rate or they estimate the recording. The doctors with whom I discussed this felt RNs did not complete the taking and recording of respiratory rate because of a reliance on electronic machinery. This comment is similar to Hogan’s study in 2006. I was intrigued by the comment that Doctors felt some RNs estimated the respiratory rate. Whilst observing doctors’ ward rounds, I noted that it was common practice for doctors to use the respiratory rate from the observation chart for their documented assessment of the patient in the patient’s health history.

Another common factor that I noted during the introduction of EWS was that there is no agreed ‘normal’ respiratory rate range as there is for pulse rate or Blood Pressure (BP) range. In textbooks and the variety of other assessment resources a normal respiratory rate range is different. For example Jevon & Ewens (2002) quote a normal respiratory rate in adults: “...is approximately twelve breaths per minute” (Jevon & Ewens, 2002 p. 36-37).

However, Pirret (2009) states that a normal respiration rate in an adult would be 10-20 breaths per minute. The Modified EWS system has a normal respiratory rate in adults as 9 to 14 breaths per minute (Subbe, Kruger, Rutherford & Gemmel, 2001). This lack of consistency could be influencing nursing practice. Also, this makes the respiratory rate different to a pulse rate; a normal pulse rate is seen as a rate 60-80 per minute (Alexis, 2010). Mulryan (2011) felt that using the perceived normal ranges of vital signs in clinical assessment could lead to a misinterpretation of an individual patient’s condition. For example chronic conditions will impact on the physiology of the individual. This will result in a change of the vital signs and these changes become the norm for these individuals.

I am also aware that nursing practice is influenced and guided by various organisations’ visions, guidelines and code of conducts.

The lack of consistency over the normal range for adult respiratory rate, the evidence observed whilst completing the introduction of the EWS at a New Zealand DHB and the need for RNs to demonstrate their practice to the NCNZ has framed my curiosity further. Why is it that RNs on occasions do not record a respiratory rate, but will complete other vital signs during their practice? My nursing career and work with the detection of the deteriorating patient has made me very close to this topic. Being close to the topic enables an understanding but can bring a bias too. As the study progressed I needed to be constantly aware of this to ensure that the data was analysed reliably.

The written structure of the thesis is in chapters that cover a review of literature appropriate to the topic, discussion on the methodology, the results, discussion of the results and a conclusion which includes the recommendations from the research and any limitations that are present in this research.
Chapter 2
Literature review

2.1 Introduction

This chapter identifies the research literature that is available and appropriate on the topic of what influences RNs to not take and record respiratory rate. An initial review of literature was undertaken at the beginning of the study to gain bases for understanding the topic thus supporting the methodology, in particular the development of questions for the interviews. The literature was again reviewed post analysis of the data to ensure that the literature review component of this study was up to date and relevant.

Topics reviewed involved the influences on nursing practice, values and beliefs of healthcare workers in the not taking and recording respiratory rate, track and triggers systems, the deteriorating patient and not taking and recording respiratory rate as well the use of technology for observation recording.

2.2 Search Methods

A search of Medline, Pubmed, CINAHL and Proquest databases was undertaken using the following search terms: decision making, intuitive practice, confidence, nursing assessment, respiratory assessment, respiratory rate, work of breathing, nursing observations, oxygen saturations, pulse oximetry, deteriorating patient, early warning score and chart design. The search range was from 1990 to 2012, including English text only with a focus on primary research papers. The primary research papers reviewed were chosen for their relevance to a respiratory assessment in relation to RNs. There were a limited number of research studies that are linked to RNs and the relationship of respiratory rate recording. Forty-five journal articles on the topic were reviewed relating to respiratory assessment and track and trigger systems. Of these, 39 related to the topic of respiratory rate monitoring, either about its importance or of compliance. One hundred and sixty-five journals related to the topic of decision making, confidence and or intuitive practice were highlighted in the CINAHL database from 2001 to 2012. A high percentage of these journal articles related to specialist practice such as emergency nursing or elder care. It was decided to use only those that were generic in nature from 1990 to present day. This led to 20 articles being reviewed.

2.3 Influences on Nursing Practice

Discussed earlier in Chapter One was the influence that regulatory bodies such as the NCNZ have on nursing practice.

Hedberg and Larsson (2004) highlights that there are three categories that influence RNs in their decision making. These are the person making the decision, the task, and the
environment in which the decision is being made (2004). Tanner (2006) also highlights three points that influence decision making practice with RNs. These are: the experience and knowledge that the RN brings to the situation; knowledge of the patient; and the environment and culture of the nursing unit in which the RN works.

An RN's experience also influences her/his practice and assessment skill. Benner's (1984) work defines nurses' abilities using the description “Novice to expert”. Benner applies a model of skill acquisition to identify five levels of competency. The five levels of competency are Novice, Advanced Novice, Competent, Proficient and Expert. For each of these levels there are definitions and examples of practice within Benner's work. Benner defines experience as, “…preconceived notions and theory through encounters with many actual practical situations that add nuances or shades of differences to theory” (Benner, 1984 p. 36).

Benner’s model implies that to reach the expert level within nursing, experience is required. Benner defines the expert nurse as someone who:

no longer relies on an analytic principle (rule, guideline, maxim) to connect her or his understanding of the situation to an appropriate action. The expert nurse, with an enormous background of experience, now has an intuitive grasp of each situation and zeroes in on the accurate region of the problem. (Benner, 1984, p. 32).

Tanner (2006) agrees with Benner, discussing how in clinical decision-making the experienced nurse is able to respond intuitively to a familiar situation. Benner and Tanner’s (1987) combined work, on an intuitive practice model, cited in Smith (2009), is based on Dreyfus’s model of skill acquisition (1986). Benner and Tanner’s (1987) model is used to describe how expert nurses use intuitive practice. It has six key aspects to it, which are:

1 Pattern recognition
2 Similarity recognition
3 Commonsense understanding
4 Skilled know how
5 Sense of salience
6 Deliberate rationality.

(Smith, 2009).

Benner’s model (1984) links intuition to experience, skill acquisition and cognitive abilities, however Smith (2009) notes that nursing research has found that intuition is not exclusive to expert nurses. Smith cites Ruth-Sahd and Hendy’s (2005) work with novice nurses which found
that their age or previous hospitalisation allowed these novice nurses to apply intuition to their
decision-making. Hoffman et al. (2004) carried out a study of 96 RNs in Australia,
investigating their decision-making in clinical setting. Hoffman et al. (2004) found that
experience and educational level did not strongly influence decision making. McCormack, cited
in King and Appleton (1997), researched the use of intuitive practice with nursing students. He
found that they usually thought intuitively with patients they knew well. This is also discussed
by Tanner (2006) in her work around clinical judgment models, also saying that having a
knowledge of the patient enables more effective clinical judgement by the RN. This supports
Benner and Tanner’s (1987) model of intuitive practice with pattern recognition. Rew and
Barrow (1989) discuss how nurses supplement the linear analytical approach to nursing with
their own personal and intuitive experience. Rew and Barrow (1987) argue that linking analytical
and intuitive approaches will enhance nursing management. Turnball (1999) discusses intuition
as the “neglected source of knowledge” and King and Appleton (1997), in their review highlight
the lack of recognition for the use of intuition in practice. However Tanner (2006) describes
intuitive practice as an influencing factor within nurses’ decision making.

Others, such as Thompson, Bucknall, Estabrookes, Hutchinson, Fraser, Rien de Vos,
Binnecade, et al. (2007) dispute the use of intuitive practice within nursing. They analysed
nurses’ ability to assess the risk to patients during a critical event. Their research demonstrates
that nurses risk assessment varied considerably. Thompson et al. (2007), found in their
research that the use of empirical information (e.g. vital sign recording) was more important than
the use of intuitive judgement. Rew and Barrow (1987) highlighted how a reflective period
needs to be where the nurse is open to validating intuitive feelings against objective data.
Tanner (2006) also supports this view, highlighting that a clinician would rarely use intuitive
judgement on its own to assess patients, the use of analytical judgement was also important.
Crosskey and Norman (2008) discuss this combination approach of intuition combined with an
analytical approach to decision making within medicine. Crosskey and Norman (2008) discuss
overconfidence as another human factor that influences medical practice in decision making.
Berner and Gaber (2008) discuss overconfidence as a cause for medical diagnostic error. They
found that overconfidence played a role in the diagnostic error, concluding that,
“Overconfidence exists and is probably a trait of human nature – we tend to overestimate our

In nursing research, Wynne, Marteau, Johnson, Whiteley and Evans (1987), focused their
research on resuscitation skills and showed that some RNs who had a high level of exposure to
resuscitation experience and status in the nursing structure, i.e. senior nurses, were unable to
complete the skill competently but assessed themselves as being capable of completing the
skill. Wynne et al., (1987) concluded that some experienced RNs were over-confident in their
abilities to perform resuscitation skills. They believe that the over-confidence arose from
exposure in the area with no constructive feedback on performance. Marteau, Wynne, Kay and
Evans (1990) and Castle et al. (2007) also found a link between confidence and competence
with resuscitation skills and nurses. Both studies found that, despite frequent exposure to the situation, some RNs were over-confident in their abilities whilst not competent to complete the skill during assessment processes. Duff et al., (2007) also cited confidence as a barrier to the nurse undertaking clinical skills in relation to respiratory assessment.

One of these issues is the increasing workload in the modern world (Street, 1995). Nurses are expected to manage this increase, and time management is seen as an important skill of nursing. Street (1995) highlights the influences on workload by stating that:

Clinical nurses have learnt that they need to complete many physical, technical and psycho-social activities in a day’s shift, and that they will not only have to do their own work but that they will be expected to facilitate and coordinate the work of others. (Street 1995, p. 41).

van Hell, Kuks, Schonrock-Adema. Lohuizen and Cohen-Schotanus (2008) cite Driscoll’s (2000) and Van Marrienboer and Sweller’s (2005) work, which highlighted that an increase in workload can lead to cognitive overload. Cognitive overload can occur when too much information has to be processed (van Hell et al., 2008). Nurses are required to make regular decisions relating to patient management. McCaughan, Thompson, Cullum, Sheldon and Thompson (2002) found that during observation of RNs, an average rate of decision making was one every 10 minutes. They found in their use of information in clinical decision making that time was highlighted as an influencing factor. Hedburg and Larsson (2004) conducted an observational study of RNs in Sweden. They found that interruptions from patients accounted for 25% of the interruptions to RNs work routine and that RNs were interrupted irrespective of where they were located at the time. Hedburg and Larsson (2004) also found that RNs were interrupted 62% of the time whilst carrying out direct patient care. Hedburg and Larsson (2004) observed the time pressures that the RNs were under due to time frames for routine events, such as meals, medication administration and medical ward rounds. Hedburg and Larsson (2004) concluded that interruptions contribute to the complexity of decision making that an RN undertakes. Tanner (2006) highlighted that decision making by RN was also influenced by knowledge of the unit and routine workflow.

2.4 Respiratory rate taking and recording

Comprehensive assessment of patients is advocated by NCNZ as best practice for good health outcomes (2007). The “look, listen and feel” assessment model is advocated by many as the basis of a comprehensive assessment (Hunter & Rawlings, 2008; NZRC,2007). Respiratory assessment is advocated to establish the respiratory status of an individual patient and provides information that indicates the status of other systems within the body, e.g. cardiovascular or neurological (Hunter & Rawlings, 2008). Hunter and Rawlings (2008) discuss the equipment required to complete a respiratory assessment. This includes a watch with a second hand, stethoscope, alcohol swab for cleaning the stethoscopes ear pieces, pen and observation chart.
Massey and Meredith (2010) highlight that the taking of respiratory rate is to:

count the number of complete breaths that occur during a 60-second period. This may be done by subtle observation or watching the patient’s chest raise and fall. (2010 p. 539).

Mulryan (2011) agrees with Massey and Meredith (2010) that patients have a degree of voluntary control over their respiratory rate. This voluntary control, Mulryan (2011) states, can lead to patients consciously changing their respiratory rate pattern if they are aware that the RN is counting it. Hunter and Rawlings (2008) support that the respiratory rate should be counted for one full minute. They also advocate that it is important to also note the depth of the breathing whilst counting the rate. Kennedy (2007) also advocates that the respiratory rate should be counted for one full minute and that it is good practice for the care of all patients. Considine (2005), in research surrounding the prevention of adverse events that relate to respiratory dysfunction, highlighted that:

respiratory rate data are only valuable as an alerting factor for risk of adverse event if assessment is performed at appropriate intervals and the data are studied to identify trends such as increasing tachypnoea. (2005, p. 629)

As discussed in the previous chapter respiratory rate has reportedly been inconsistently taken and recorded by RNs within the literature surrounding the introduction of track and trigger systems. The work introducing track and trigger systems have indicated that respiratory dysfunction is a common rationale for those patients likely to require an elevation to high level care, such as Critical Care (McQuillian et al., 1998; Buist et al., 1999; Robb & Seddon, 2010). The work around the introduction of track and trigger systems has demonstrated that there are situations RNs have not consistently recorded respiratory rate (Kenward et al, 2001; Ryan, Cadman & Hann, 2004; Butler-Williams et al., 2005; Smith, 2008). The introduction of support systems to facilitate the earlier detection of the patient whose medical condition has deteriorated, for example Critical Care Outreach teams, education packages and EWS, has demonstrated an improvement in the taking and recording of respiratory rate by healthcare workers (Smith et al., 2008). Similar work such as Butler-Williams et al., (2005) and Kenward et al., (2001) also noted an improvement of respiratory rate taking and recording post introduction of EWS and Critical Care Outreach teams.

2.5 Technology

Electronic observation equipment became a common resource for RNs in the late 1990s and early 2000 when safety concerns arose over the mercury in sphygmomanometers and thermometers (O’Brien, 2000; Gupta, Mittal, Rizzo, Bikkina & DeBari, 2009). Another area cited as influencing the not taking and recording of respiratory rate is that of electronic observation equipment. It is common for electronic observation equipment to be used for the taking of all
vital signs bar respiratory rate. Hogan (2006) found in her study that RNs did not take or record respiratory rate because Dinamaps (electronic observation equipment) do not do it. Salford Royal Foundation NHS Trust presented findings at a conference in the UK, stating that since the introduction of manual blood pressure checks on patients, cardiac arrests had dropped by 59% (Snow, 2011). The introduction of manual observations within Salford Royal Foundation NHS Trust did not increase the time taken to record the observations using machinery (Snow, 2011). Kisiel and Perkins (2006) highlighted that whilst electronic observations recordings are used often there is a need to be aware that manual BP measurement is more accurate representation. In 2009 the Nursing Times ran an online poll of which it received 830 responses from RNs in the UK. Eighty-five percent of the respondents stated that electronic observation equipment was used in their working area. Forty-two percent of the respondents believed that nurses were less likely to identify the signs of deterioration in patients when using electronic observation equipment (Lomas & West, 2009).

2.6 The deteriorating patient

The last few decades of both nursing and medical research has shown the delay or failure by RNs in the ward setting to recognise the patient who is deteriorating (McQuillan et al., 1998). Strategies to support RNs to recognise the deteriorating patient include the development of assessment tools to support provision in the form of Critical Care Outreach services and educating the nurse to recognise these patients sooner. Research papers surrounding the management of the deteriorating patient or cardiac arrests have observed that rapid assessment tools such as Modified Early Warning Score System (MEWS) are an effective way to support the nurse in the early recognition of patients at risk of deterioration. (Buist et al., 1991; Buist, Moore, Bernard, Waxman, Anderson & Nguyen, 2002; Kenward et al., 2001; McQuillian et al., 1998; Subbe, Kruger, Rutherford & Gemmel, 2001; Robb & Seddon 2010). Within all the studies reviewed it was noted that patient physiological deterioration was either not always recognised by RNs or not reported early to the appropriate clinician for review.

McQuillan et al. (1998), assessed 100 unplanned admissions to two Intensive Care units in the UK and found that, of this number, 54 patients received suboptimal care and/or delays in referral to the Intensive Care service within these two hospitals. McQuillan et al’s., (1998) work showed that deteriorating patients were identifiable by appropriate monitoring of airway, breathing and circulation, and supported the need for improvements in the recognition and management of deteriorating patients.

2.7 Discussion of track & trigger systems

To support the identification of the deteriorating patient physiological track and trigger scoring systems have been developed. These track and trigger systems require the RN to monitor and record appropriate observation at the appropriate time, which involves the monitoring of patient respiratory rate. Track and trigger systems were developed to assist the ward nurses to identify early the deteriorating patient (Oakey & Slade, 2006).
The emphasis of the majority of studies has been on the introduction of a track and trigger system combined, usually with an education programme (Kenward et al., 2001; Butler-Williams et al., 2005; Smith, 2008). This combination of an assessment system and an education package implies there has been a lack of RN knowledge of the importance of the monitoring respiratory function as a detection of deteriorating patient within ward areas. Higginson and Jones (2009) discuss the need for critical care core skills to be taught in health educational establishments and hospitals to support the needs of the nurses. They describe courses such as BASICS4NOW and the Acute Life-threatening Events Recognition and Treatment (ALERT).

With the introduction into hospitals of a track and trigger scoring systems a new observation chart appears to be the norm (Robb & Seddon 2010; Kenward et al., 2001; Oakey & Slade, 2006). McCormack (2005) demonstrated that the introduction of a new chart with an incorporated EWS increased the recording of observations, in particular respiratory rate recording by nurses increased from 8% to 80%. Oakey and Slade (2006) report that the introduction of new charts improve the recording of observations. However, they note there is a risk of confusion over the change in practice and the chart design may contribute to errors in the monitoring or communication to the appropriate clinician.

2.7 Values and beliefs of healthcare workers on the recording of respiratory rate

Hogan’s (2006) qualitative research used three focus groups comprising RNs, student nurses and Health Care Assistants (HCAs) to explore nurses’ values and beliefs around patient observations. Hogan’s results demonstrated that the delivery of education on taking and recording respiratory rate in nurse education settings is inconsistent. Furthermore, the context for taking and recording vital signs is presented differently in different nurse education settings. One of the participants in Hogan’s (2006) study discussed where she/he was taught the taking and recording of vital signs, highlighting that blood pressure and temperature recording were taught as skills training whereas respiratory rate recording was taught as part of oxygen therapy in a different stage of the course. Some RNs and HCAs were never taught to take respiratory rate in a nurse education setting, instead they learnt from senior colleagues within the hospital ward environment. The student nurses reported that whilst they were taught the skill of recording respiratory rate they were given no rationale for its function in the management of the patient’s care. Hogan (2006) also discovered that all three groups of health care workers in her study perceived that respiratory rate was monitored inadequately because of lack of time, lack of knowledge and lack of equipment to complete the task. Kenward et al. (2001) report anecdotally that nurses do not record respiratory rate as there is an over-reliance on automated equipment technology. Kenward et al. (2001) also report that the taking and recording of vital signs in UK healthcare settings can be delegated to the least qualified healthcare professionals (HCAs) in the ward and the consequences of not taking and recording respiratory rate are less likely to be understood by this group.

2.8 Conclusion
Whilst there is a plethora of studies into the significance of monitoring respiratory function, track and trigger scoring systems and their introduction, there are limited studies about what influences RN practises around recording patient respiratory rate. There is evidence to suggest that the more experienced RNs are the more they use intuition to assess their patients. However, as Tanner (2006) stated, this needs to be supported with the collection of empirical evidence to support the management of the patient.
Chapter 3
Methodology

This chapter discusses the methodology used for the study. The research design was based on a qualitative descriptive exploratory method using semi-structured interviews. This research design was chosen as being the most appropriate to meet the study objectives, enabling the most meaningful data to be collected and analysed to help ensure that an in-depth understanding was gained.

3.1 Design

This study reflected a qualitative design approach. According to Avis (2005) qualitative research is person-centred and helps the researcher understand the reasons for certain behaviour by observation and questioning individuals. Also Schneider et al. (2007) discussed how qualitative methodology research can be performed without it necessarily being attaching to a specific theoretical framework. Schneider et al. (2007) feel that this approach enables the qualitative researchers to stay close to their data. Many nurse researchers using qualitative study follow the form of descriptive, exploratory method (Schneider et al., 2007). Descriptive exploratory method can also be described as a free form method (Schneider et al., 2007). It is the method used in this study to support the examination of nurses’ perceptions in the area of taking or not taking and recording respiratory rate. Use of this method has enabled the researcher to stay close to the data and to draw on the prior knowledge that she has regarding this topic.

The objectives that form the basis of the study are to understand what influences RNs’ practise regarding not taking and recording an adult patient’s respiratory rate. These objectives are:

1. To understand nurses’ perceptions of when it is appropriate to not take and record respiratory rate.
2. To demonstrate in which circumstances are nurses not taking and recording respiratory rate.
3. To understand the factors that influence RNs in not taking and recording respiratory rate.
4. To understand how the recording of respiratory rate is undertaken when it is done.

The literature review discussed how respiratory rate may be inconsistently taken and recorded by RNs despite its demonstrated importance for recognising the patient whose condition is deteriorating. The literature review also highlighted the limited amount of qualitative research applied to understanding the inconsistent approach to taking and recording respiratory rate by health care workers.
3.2 Data Collection
The data for this study was collected via recorded semi-structured telephone interviews. “The interview allows entrance into another person’s world and is an excellent source of data” (Streubert & Carpenter, 1995, p.43 ).

The rationale for the use of telephones as the method of data collection was to ensure that participants could be more easily accessed from hospitals different from the one in which the researcher works. Accessing participants from other hospitals helped to eliminate any possible influence the researcher may have over the participants’ responses.

3.3 Research participants
Ten RNs were interviewed via individual semi-structured interviews. These research participants were accessed from 3 different hospitals within New Zealand. They were all RNs who worked in adult wards. RNs working within areas of a hospital that have electronic equipment which continuously monitors patients' respiratory rate were excluded from this research. The continuous monitoring that already takes place in these areas excludes the need for the manual taking of respiratory rate. Therefore the RNs in these areas have limited experience in the impact the taking and recording respiratory rate has on their nursing practice. The researcher has identified these areas as being Critical Care, Coronary Care Units (CCU) and Theatres. Also excluded were RNs working within Paediatrics as this working environment does not have adult patients and Maternity areas, where there are only small numbers of RNs as the predominant workforce are midwives.

Of the 10 research participants, two were designated senior nurses and the remaining eight were ward RNs working within the specialities of the Emergency Department, Surgical, Medical and Assessment, Treatment & Rehabilitation. Their lengths of time as an RN ranged from 3 to 40 years plus, with the majority of those interviewed being within 3 to 10 years. To ensure anonymity, the nurses have been assigned a number when reporting from their interview.

The ten RNs came from three hospitals, two of the hospitals were regional and one was a small hospital which carried out elective surgery only. One of the hospitals had already instigated an adult EWS system.

3.3.1 Sampling
Due to time limitations the research was carried out on a small scale using ten interviews. However, Schneider et al., (2007) states that the common range for sampling size for qualitative studies ranges from eight to ten participants. Sampling for the interviews was homogeneous and convenience focused. Homogeneous sampling is a group of participants with similar experiences; this is demonstrated in this group of participants as they were all ward based RNs (Schneider et al., 2007). Convenience sampling was used to access the group of participants from the same arena of work (Schneider et al., 2007). This method of homogeneous,
convenience sampling ensured that members of the group were able to reflect using their common experiences. The inclusion criterion was for any RN working within a hospital within a general adult nursing area that undertakes regular vital sign recording. The rationale for the inclusion criteria was to gain a broad overview of nursing practice and the influences that are placed upon it.

Participants for the research were recruited from hospitals across the Central Region of the North Island of New Zealand. The participants’ information sheet and consent forms are included in the appendices and were given out at recruitment, this ensured that informed consent was gained prior to participation. The researcher received the participants’ contact details along with an appropriate time to contact.

Initially two Nurse Educators (NE) identified by the researcher were approached in two of the three hospitals used in the study to advertise the study within their hospitals. The NEs were given letters to pass on to potential participants, the letter giving information regarding the study and contact details for the researcher (Appendix 6). This type of advertising had limited success with only three participants being recruited from one hospital and none from the other. Snowballing was tried in the first hospital with no success. Snowballing is where the researcher gathers information from a few people and then uses these individuals to help them contact other people who may wish to take part in the study (Schneider et al., 2007).

As time was limited the Central Region Ethics Committee was contacted to ask for permission to include a third hospital within the region in the study. This request was granted and a further two participants were gained from the third hospital. In the meantime a different contact was obtained from the second hospital and this resulted in five further participants. This did cause a delay with the data collection for a short period of time.

3.4 Ethical Considerations

As highlighted by Holland and Rees (2010), “data gathering is not the right of the researcher but an activity that first of all needs permission and careful scrutiny to ensure that the activity of data gathering is justified, and, secondly, carried out in an acceptable manner to all those concerned.” (p 58). The following ethical principles were considered prior to the drafting of the research proposal and application to the Central Region Ethics Committee.

3.4.1 Respect for autonomy

Respect for autonomy is a right to self determination (Holloway & Wheeler, 2010), in other words the individual has the right to make a free, independent and informed choice without coercion. The participant information sheet discusses the research topic and its methods, whilst the consent form states that the involvement in the research is on a voluntary nature. The participants were given the opportunity to ask questions and have these answered prior to the consent for the interview to proceed.
3.4.2 Respect for privacy and confidentiality
All participants within this study were given anonymity, meaning that they were not identifiable in any reports from the research and that no person will be able to identify individuals taking part in the study (Holloway & Wheeler, 2010). All tapes and documents from the study had participants’ names removed and were stored in a locked cupboard. Again this was highlighted on the participant information sheet (see Appendix 2).

3.4.3 Respect for justice
This ethics principle ensures that the research strategies and procedures are fair and just (Holloway & Wheeler, 2010). This principle ensures that the study’s participant sample fairly represents the population covered by the topic, in this case it was RNs working within acute hospital areas that admits adults.

3.4.4 Beneficence and nonmaleficence
This principle derives from the medical profession’s ethical framework to do good and do no harm (Holloway & Wheeler, 2010). This involves preventing and/or removing harm. It was not anticipated that any risks would be associated with the participants provided the ethical principles discussed here were applied to the study.

3.4.5 Respect for cultural diversity
This research did not identify or explore issues of cultural diversity. The topic of this study, the not taking and recording respiratory rate, impacted on all ethnic groups therefore the results have implications for improved health care for all.

3.4.6 Respect for human vulnerability and personal integrity
This acknowledges that some groups or individuals in society are more susceptible to harm or injury and have limited capacity to protect themselves from threats to their safety either physically or psychologically (Schneider et al., 2007). This study’s participants were taken from RNs within New Zealand and the threat to their personal integrity could arise from colleagues and peers being aware of their participation in the study. As their anonymity was protected the perceive risk to the participants remained low.

3.4.7 Approval
Ethical approval was obtained from the Central Region Ethics Committee on 30th August 2011; the allocated reference number is CEN/11/EXP/071 (see Appendix 4). The Central Region Ethics Committee role is to scrutinise research proposals to ensure that the researcher has considered the ethical principles discussed in this section.

3.5 Interviews
The use of interviews allows the researcher to obtain information about the participants’ attitudes and beliefs as the questions are asked directly (Beanland & Schneider, 1999). The
focus of the telephone interview was a discussion around set questions by which the RN was able to highlight situations when either they or their colleagues would not take a respiratory rate, and provided opportunities for further explanations. The use of semi-structured interviews allowed the questions to be asked in any order allowing the interviewer freedom to follow up on issues that the participant presented (Schneider et al., 2007).

The development of the questions was based on the objectives of the research and used as a guide for the participant during the interview. Appendix 1 provides a copy of the interview questions given to the participants. The interview questions began with some funnelling questions that enabled the gathering of general information from the participant. The questions after this were then based on the story-telling of the topic allowing the participants to elaborate more on their thoughts and examples of the times that they or their colleagues had not taken or recorded respiratory rate. The researcher used probing questions to ensure that clarity was gained (Schneider et al., 2007).

The questions were initially piloted on four colleagues at the researcher’s hospital; two of the individuals received the questions prior to an arranged interview and the others were given the questions at the time of the interview. The piloting of the questions allowed the researcher to establish whether she would cover the objectives of the research and that the questions were clearly understood by the individuals. The researcher conducted prearranged telephone interviews to assess whether or not the questions met the objectives of the research. The pilot established that the questions met the objectives of the research and ensured quality data of the topic to be gained. Also, piloting the questions showed that the data was enhanced by giving the participants the questions prior to the interview thus allowing them to reflect on the topic. More importantly, the questions were also reviewed after the pilot study to ensure that interviewer was able to remain neutral. The researcher asked those involved in the pilot to comment on whether the questions were threatening, biased, coercive or manipulating (Schneider et al., 2007).

During the interviews the researcher made notes as well as recorded all the interviews. This allowed accurate examination of the data later on. All the interviews were conducted at a time convenient to the participants, allowing them to be in an environment in which they felt comfortable. Also the researcher ensured that they were in a place that was private and free from interruptions. These actions ensured that the participants were able to discuss the topic as openly as possible whilst their privacy was maintained (Schneider et al., 2007).

The interviews took place over 4 months from November 2011 till March 2012. Each interview was carried out at a prearranged time; consent for recording of the interview was gained at the start of the interview. Each interview took 20 minutes on average to complete. Data saturation was perceived to be accomplished when no new data/theme was obtained, when the data being collected was repetitive in nature or nothing new was being obtained (Schneider et al., 2007). It was considered that data saturation had been reached within the ten interviews that were
undertaken. There are disadvantages to using interviews for research, for example they can be
time consuming, there could be power relationship between the researcher and the participants,
and there are limitations when obtaining sensitive data (Schneider et al., 2007). However, the
use of telephone interviews in this study was a strength as they enabled the researcher to
access the participants easily (Holloway & Wheeler, 2010). The time taken to complete the
interview was 20 minutes on average which is not too time-consuming for the participants or
interviewer. Using the telephone interviews overcame the distance of reaching participants in
remote areas (Holloway & Wheeler, 2010). This ensured the researcher was able to access a
diverse group of RNs with a variety of experiences. Also, the questions were piloted to ensure
that they were not biased, coercive or threatening in anyway.

3.6 Data analysis

The data was analysed using Thomas’ “General Inductive Approach for analysing qualitative
evaluation data” as a guide. Thomas’ approach uses thematic analysis which allows the themes
within the data to emerge (Thomas, 2006). Initially the researcher used the objectives of the
study to identify themes. This provided a direction for the analysis. The data was transcribed
by the researcher allowing her to be close to the data. Once the data was transcribed, the
researcher began to code the data into themes and subthemes. This process identified eleven
themes; these themes are discussed in detail in the following chapter. Once the researcher had
completed the coding of themes a consistency check on the raw data was carried out by both
the research supervisors. The consistency check ensures that all themes had been identified
and that the researcher’s analysis of the data is a transparent and defensible reflection of the
raw data (Thomas, 2006).

3.7 Conclusion

Using a qualitative descriptive, exploratory method to complete this study ensured that the study
focused on the experiences and perceptions of RNs working within the field of adult nursing.
Ten participants who fitted the research criteria were accessed and interviewed by telephone to
achieve the objectives of the study. The raw data was analysed into themes to be able to
discuss the experiences of the participants used within the study. The themes are discussed in
the next chapter.
Chapter 4

Results

4.1 Introduction

This chapter presents the results of the study which has used Thomas’ (2006) Inductive approach to thematic analysis. The approach reflected on the objectives of the study which were:

1. To understand nurses’ perceptions of when it is appropriate to not taking and recording respiratory rate.
2. To demonstrate in which circumstances are nurses not taking and recording respiratory rate.
3. To understand the factors that influence RNs in not taking and recording of respiratory rate, and how the recording of respiratory rate is undertaken.

Using these objectives the researcher identified themes to provide a framework for the analysis. The data was identified into codes and themes by the researcher followed by a consistency check on the raw data by both supervisors. The themes identified in the analysis of the data are linked and on occasion may overlap. However it did not seem to be appropriate once a thorough review had been completed to combine some of the smaller themes together.

When the researcher began the investigation into the topic of the taking and recording of respiratory rate she was unaware of the complexity of the topic. Whilst these subthemes do overlap, the author felt that it was important to leave the themes independent, as the data within these themes demonstrate the complexity and contradictory nature of the topic. Therefore, the format of this chapter follows the individual themes thus enabling the reader to also see the subthemes associated with the topics. The identified themes were: the frequency of respiratory rate recording; missed observations; time constraints, interruptions; estimation of respiratory rate; experience; education; autonomy; equipment; EWS and the value of respiratory rate in the nursing management.

Ten RNs were interviewed via individual semi-structured interviews; two of the group were designated senior nurses and the remaining eight were ward RNs working within the specialities of the Emergency Department, Surgical, Medical and Assessment, Treatment & Rehabilitation. Their lengths of time as an RN ranged from three to 40 years plus with the majority of those interviewed being within three to ten years. To ensure anonymity, the nurses have been assigned a number when reporting from their interview.

4.2 The frequency of respiratory rate recording
During the interview RNs were asked to identify approximately how frequently they recorded a patient’s respiratory rate. Of the ten interviewed RNs, three stated that they always took and recorded the respiratory rate when it was required to be completed. These circumstances included when the patient was deteriorating, following clinical procedures, associated with medication administration and management as well as the routine observation recording. For example:

*I do [respiratory rate] 100%...I guess a lot of the patients we see are on opioids, so respiratory rate is quite vital to us.* (Participant 2, page 1)

Participant 3 stated she always takes and records respiratory rate, she answered:

*We aim for every hour...every time we see the patient, yes.* (Participant 3, page 1).

Participant 1 discussed her rationale for completing respiratory rate as well. In her response to this question, she stated:

*I would say 100% of the time but you cannot complete the whole [EWS score] so that gives me extra drive to make sure I am completing it as a role model for others as well.* (Participant 1, page 1).

These first three participants were from areas where EWS had been introduced; the introduction of EWS has been demonstrated to improve the compliance of taking and recording respiratory rate.

The remaining seven interviewed participants stated that they did not always take and record patient respiratory rates. Their assessment of how often they did so ranged from 70% to 95% of the time during a work shift. The participants within this group usually gave a rationale to support their omission. The RNs’ rationales are an important part of this study as they enable understanding of why nurses chose not to complete respiratory rate recording. Statements rationalising the not taking and recording respiratory rate included:

*[It] depends on the patient, I would say 100% and I would do a little bit of guessing on patients that have been there for, like a, week and are very stable. If anyone is unwell I always do the respiratory rate so it is probably 90% of the time.* (Participant 6, page 1)

*90% of the time, the reason being if I have 4 or 5 patients one would have had intrathical morphine and I would have therefore checked their respiratory rate every time I did the obs. One of them may have had surgery three days ago and would be talking to me whilst I am doing their observations, so therefore would not take their resp rate. And a couple of them I would not deem it necessary.* (Participant 9, page 1)
Participant 10 gave two answers to this question on the frequency of respiratory rate taking and recording, stating:

70% after someone has had a routine minor procedure. Hmm I base that on their age and their condition at the time. Other than that I would do it 90-95% of the time when they have had a drug, intra operatively, post operatively or preoperatively that is known to compromise respiratory rate.

(Participant 10, page 1)

All the RNs in this study discussed the rationale for taking and recording of respiratory rate, and felt they could justify their decision why they did not take and record it. They acknowledged the occasions when they assessed that it was important to be recorded, for example, for medication management, post operatively and if the patient’s condition was deteriorating in anyway.

Participant 1 discussed the need to be a role model as a rationale for its completion. By role modelling the taking and recording of respiratory rate, Participant 1 felt she was supporting junior staff to develop and complete assessments appropriately.

The RNs justifications for missing the taking and recording of respiratory rate are based on a patient’s condition and treatment. This theme is further discussed below under the title of “Missed Observations”, however as this chapter develops it will become evident this is not the only reason RNs do not take and record respiratory rate.

4.3 Missed Observations

How frequently a nurse is required to monitor patient’s vital signs is dependent on the patient’s condition (for example, post operative, acute admission) or their medication regime (for example, intravenous opiods, Patient Controlled Analgesia (PCA), changes in hypertensive medication, blood product administration). With some medications and treatment the respiratory drive can be affected and careful monitoring of patient’s respiratory rate is required.

All hospitals should have policies to support the safe management of patients at risk of respiratory dysfunction due to medication and/or treatment. PCA management advocates monitoring of patients every five - ten minutes at the initiation and when the analgesia’s strength has been increased. Post operative management of patients also require careful monitoring, initially to ensure that the anaesthetic medication has not had a lasting effect. Again the guidelines for post operative management advocate monitoring initially every fifteen minutes.

Participant 5 stated that respiratory rate is missed when:

...there will be times when the patient looks stable, you know, they are fine, comfortable they have been on the PCA obs and on it for 24 hours, something like that, and you’ve got a patient next door that is more acute then, yes, they do get missed. (Participant 5, page 2).

In Participant 1’s experience, the area where respiratory rate is missed is:
...when some[one] goes on really frequent obs, like having IV analgesia or having a bolus through an epidural or something like that, and you’re doing the obs every five or ten minutes. Then that’s where they’re mainly missed, from what I see. (Participant 1, page 2).

Participant 4 counters this from her experience stating:

*We are really good with people post op patients, patients who are on PCAs or just general post op patients. We are just really good at doing it but when, for example someone has been there for 30 days and they are waiting for a rest home you know, obs are not done.* (Participant 4, page 1).

Participant 9 used medication regimes and patient’s condition to indicate the frequency of respiratory rate recording, stating:

*[I] Take it if they had any medication that I deemed would affect their resp rate, I would be doing their resp rate* (Participant 9, page 1).

Other medications can manifest side effects, such as anaphylactic reaction which, if severe enough, can cause swelling to a person’s airway. Participant 8 stated that she would not record respiratory rate when:

... *[patients] that are just admitted, for like, IV antibiotics, that are healthy, that are possibly stable.* (Participant 8, page 1).

On other occasions where RNs are not taking or recording respiratory rate the rationale appears to be based on the patient’s length of stay. The longer the length of stay the less likely it would appear that the respiratory rate is taken and recorded. Participant 6 confirms this, stating that she does not take or record respiratory rate if the patient is:

... *[a] long term patient, like a dementia patient or elderly that are recovering from hip operation that have stayed a lot longer than normal, something like that.* (Participant 6, page 1).

Participant 7 states that she does not take or record respiratory rate on patients who:

*[are not medically unwell, I don’t [take respiratory rate]; I suppose I should do it but I don’t make that as a priority unless there is something untoward with them.* (Participant 7, page 1).

Participant 2 explained that in her place of work, she noticed that respiratory rate was not taken or recorded on patients:
...that are seen to be stable, you know the ones that we are only doing twice a day observations. (Participant 2, page 1).

Guidelines for the safe management of medication and safe recovery post-operatively of patients following surgery mandate the completion of frequent observation of the patient. Included in this is the taking and recording of respiratory rate. Reflecting on the participants’ comments within this theme it is evident that this does not always occur. The nurses are recording all other observations for these patients as required by these guidelines. RNs appear to be comfortable with recording all other vital signs required for the safe management and post-operative patients, and believing they are adequately assessing the patient. However, research highlights that respiratory rate is the early indicator of deterioration and would be more of an alert at the time.

Long term patients are seen as stable patients who are close to discharge from hospital and no longer requiring close monitoring. This leads again to the respiratory rate not being taken and recorded along with other vital signs.

In summary, the experiences of the nurses interviewed indicate that taking and recording respiratory rate is sometimes missed on patients who require frequent vital sign recording due to medication administration or post operative management. Equally, patients who are deemed stable are also not always having their respiratory rate taken or recorded on a regular basis. One of the reasons that the respiratory rate may not be taken and recorded could be due to lack of time within a nurse’s clinical workload.

4.4 Time constraints

Time constraints impact on many parts of healthcare work and often reflect the increasing workloads that RNs are under in the modern world of healthcare. Anecdotally RNs will often state that lack of time impacts on their ability to complete a task. Lack of time was highlighted throughout the interviews are a reason why respiratory rate was not taken and recorded at every possible opportunity. The perception is that taking and recording respiratory rate involves a longer time period than taking the pulse, blood pressure and temperature, as respiratory rate is the only manual observation within vital signs. Some of the examples given by the RNs participants within this study involve the clinical environment and its impact on patient management.

Also, best practice advocates that respiratory rate should be counted for one full minute. However, RNs participants within the study reported that in the reality of nursing practice it is more likely to be counted for 15 or 30 seconds and multiplied.

The interviewed nurses gave examples of workload impacting on the taking and recording of respiratory rate, Participant 1 stated:
Clinical environment is in overloaded, I mean it is a different overloading to earlier but I come on here sometimes and I think the expectations of what some of these nurses have to achieve in their shift is huge...sometimes they have to cut corners to get through the day. (Participant 1, page 5)

Another RN highlighted that time constraints were associated with interruptions:

We do get interrupted constantly, not specifically by other staff members but by other patients or bells or doctors or anything really. You can be working on one patient and another patient is trying to get your attention. (Participant 4, page 2)

Only one of the RNs within the study talked about counting the respiratory rate routinely for 60 seconds. Participant 3 explained what occurs if a RN is taking a respiratory rate within her department, stating:

...usually you are in the middle of counting and [someone] disturbs you or you get called off to do something, hmm because it is the manual bit, hmm you know, you are in the middle of counting and then it’s gone....we would not have time to record it for the whole minute. (Participant 3, page 1-2).

Participant 7 reinforces this, also stating:

Some patients I will count for 30 seconds and then double it for a minute and other ones, depending on how their breathing is, I will record it for the full minute. (Participant 7, page 2).

Time constraints resulting from high workloads impact on the RNs’ practice of taking and recording of respiratory rate. It also impacts on the time nurses allocate to counting of the respiratory rate. Best practice advocates that the respiratory rate is counted for one full minute; this does not appear to be mirrored in the participants’ practice. In practice the majority of nurses in this study counted the respiratory rate between 15 or 30 seconds and multiplied it by either four or two respectively to calculate a respiratory rate over one minute.

4.5 Interruptions

Interruptions are closely linked to time constraints but will be discussed separately because the time constraints mainly discuss environmental workload, whereas interruptions in this situation are patient based and prevent the completion of the RN counting the respiratory rate. Participant 8 reinforced this stating:

patients tend to talk to you...they forget and they start yakking and you can not exactly say “can you shh for 5 minutes I’m going to take your respiratory rate” (Participant 8, page 1)
One RN talking about the patient interrupting the counting of the respiratory rate by stating:

\[
\text{I think it is something that we tend to have to stand and count and to be honest I actually joke that it's the one time you will find a nurse standing still. And you get someone thinking oh a nurse standing still and they try and talk to you. (Participant 3, page 1).}
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The counting of respiratory rate is a subtle process to undertake and RNs try to complete this without the patient being aware of the monitoring. Unfortunately, despite an RN’s best efforts to ensure that the patient is not aware of the situation, the patients can talk or change the way that they are breathing if they become aware of the RN counting it. This has always made the taking and recording of a patient’s respiratory rate a difficult process and it does impact on whether or not it is being taken. The inability to complete an accurate count of the respiratory rate can lead the nurse to estimate what they believe the respiratory rate to be and record this figure.

4.6 Estimation of respiratory rate

Nurses’ approximation or estimation of respiratory rate impacts on the professionalism of the recorder to complete the task appropriately. The practice of nurses estimating respiratory rate lends weight to the argument that there is limited understanding of the role respiratory rate in the clinical management of patients. Some RNs in the study confirmed that they have or do currently approximate a respiratory rate. Participant 6 highlighted this by stating:

\[
\ldots \text{and I would do a little bit of guessing on patients that have been there for like a week and are very stable. If anyone is unwell I always do the respiratory rate so it is probably 90\% of the time. (Participant 6, page 1).}
\]

Participant 5 acknowledged that she had approximated respiratory rate, stating:

\[
\text{Yes I have, and documented it at 16 ... probably with my background experience I have become quite good estimating that ... I think probably there is no other visible signs that would alert me to do it properly. (Participant 5, page 1).}
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Participant 7 commented on this in her interview, stating:

\[
\text{There have been a couple of [patients] where I have been trying and trying to get [their respiratory rate], when like, you know, some patients seem to pick up you counting them and hold their breath. Things like that after a while I will estimate in between what I have been getting before. (Participant 7, page 1-2)}
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Participant 10 discussed her experience of nurses being able to estimate respiratory rate, she stated:
On occasion I think that [nurses] have just guessed that [respiratory rate] based on your experience. That I know they were not [been] there for a full minute ...the amount of time they have been in the room they have been in and out in a matter of seconds, writing their record and I think I don’t know that you’ve done that [respiratory rate] but that is me just guessing that. But saying that I don’t trust anyone to do it in such a fashion it becomes dangerous, do you understand what I mean? ...I believe that sometimes their experience plays there. (Participant 10, page 2).

Participant 1 acknowledged estimating respiratory rate when her patient was too agitated for her to complete it accurately. However, she also maintained her accountability for safe practice by documenting the rationale for not completing the respiratory rate accurately. She states:

I would certainly have documented that there was an inability [to take and record respiratory rate] because you probably could not take anything when someone was like that, hmm, so the confused delirium, agitated patients... [not able to] watch the respiratory rate. I would certainly have documented that there was an inability because you probably could not take anything when someone was like that. (Participant 1, page 2).

There were only three RNs within the study who confirmed they had approximated respiratory rate, however Participant 10 suggested that this is potentially common practice. In some circumstances the not taking and recording would be acceptable, as demonstrated by Participant 1. Other situations where the patient is talking could also be acceptable provided the situation is documented. RNs working in New Zealand are required under the Health Practitioners Competence Assurance (HPCA) act to work within the NCNZ Code of Conduct. This requires RNs to be responsible for all actions or inactions of their nursing practice. Within the NCNZs Code of Conduct, RNs are required to demonstrate comprehensive assessments of patients within their care. Failing to take and record respiratory rate and not appropriately document the situation is a breach of the NCNZ’s Code of Conduct.

4.7 Autonomy

Autonomous practice for nurses is advocated by the NCNZ. It is seen as an essential element of nursing practice within the profession of nursing. To be able to practice safely and autonomously RNs must have an understanding of the implications of their actions and inactions to the patient. However, within the study it was highlighted that RNs do not have a full understanding of the role of respiratory rate in the assessment and safe management of a patient during an acute stay in hospital. Participant 1 spoke about RNs needing to understand the implications of not taking and recording respiratory rate:

I want to be positive. The recording of respiratory rate has improved and the biggest thing has been the EWS. Not because people have thought
that we should do this as it is better for practice for our patient outcome but it is driven by EWS. It is instilling that realisation that you need to do that.

(Participant 1, page 6).

Participant 1 also spoke about the impact that EWS had on RNs autonomy, she stated:

_I was being told this is what you have to do so it felt like it was ...teaching nurses not to use their own assessment skills, that this is the guideline, you know, and this is it. And not to look outside._ (Participant 1, page 3).

RNs champion their autonomous practice within healthcare, however some of the comments highlight that it is not always used appropriately. Equally when systems such as the EWS are introduction to support RN roles, the changes are not necessarily seen as a valuable tool. Perhaps this reflects the way that organisations introduce changes which are perceived to benefit the patient but the impact of the changes on the RN’s autonomy is not always thoroughly considered.

4.8 Experience

An experienced nurse is seen as someone who has worked within an area of nursing for a long period of time and has become knowledgeable and skilled in this area. Experienced nurses use more than the taking and recording of vital signs to support their patient assessment. These assessment skills can detect changes in the way the patient looks, feels or how they sound. Assessment of these changes can give more of an overall evaluation of the patient condition.

Participant 5 felt her experience enabled her to estimate respiratory rate. She stated:

_Probably with my background experience I have become quite good estimating ...I think probably there is no other visible signs that would alert me to do it [take and record respiratory rate] properly._ (Participant 5, page 2).

Participant 1 also discussed how her experience gave her the ability to visually assess a patient:

_...the bigger thing for me, [is to] do a round first thing just to make sure everyone is alive and well and everything is okay...is to look [at the patient]...not necessary counting the respiratory rate but watching what was happening there because within a short space of time you could see someone struggling or you know that they were a little bit over drowsy...by using the visual but new staff were not able to do that as they had to count._ (Participant 1, page 4).

Participant 9 also discussed using visual clues to assess patients, stating:
It is their condition [that] deems whether I do it or not, I make that assessment, that judgement on their condition. … [a] visual and physiological assessment. (Participant 9, page 1).

Participant 1 discussed situations with patients where she had been able to assess whether there was a need to take and record respiratory rate for particular patients. She stated:

Knowing what I know, because I’ve quite a wealth of experience myself, I probably was in the realm of safety because I had experience, but actually, to have the less experience or new staff on, than it would not have been a safe option [to not take or record respiratory rate]. (Participant 1, page 1).

The experienced RNs in this study believed that whilst they may not take and record respiratory rate, there is more to the assessment of a patient’s condition. The experienced RN used visual clues from the patient and combined it with their previous experience and knowledge of similar situations to help them assess their current patient.

4.9 Education

The way that the RNs were taught to take and record respiratory rates may impact on their actual practice. Without the correct understanding of the role respiratory rate plays in patient assessment, the RN may not take or record it accurately. This could result in the patients’ safety being compromised. For example, careful monitoring of the patient is required post intravenous administration of analgesia. All of the RNs interviewed stated that they understood the importance of taking and recording respiratory rate, even though they did not always do so. Participant 6 described her student nurse training this way:

…it was part of the nursing observations; it was just as important as the BP...[they were] taught all at once, part of doing the observations was doing the respiratory rate. (Participant 6, page 1).

Participant 9 stated that respiratory rate taking and recording was taught alongside blood pressure and pulse in her student nurse training. She stated:

BP, pulse were taught all together on the first day. [I] Cannot remember being taught the rationale, you just did it as part of your observations. (Participant 9, page 2)

On the other hand, Participant 10 described a different experience in which she felt she was not taught properly and had to learn ‘on the job’. She stated:

I don’t recall ever being taught it properly, I just remember a doctor in my third year, saying that things aren’t going so well [with the patient, the respiratory rate taking and recording] must be for a minute. I for some reason have never forgotten that but I do think the technique of counting
could be better taught. I think there are techniques around that that we take for granted a bit. ...respiratory rate would have been more glossed over. You see the chest raise and go down but in reality that is not always how people breath...I have had to learn that a little bit myself really, and through other people who have got experience – saying, you know, look at this person they actually are breathing but slightly different than the person in the next bed or whatever. (Participant 10, page 3).

Participant 1 explained that, with the introduction of the EWS system into her hospital, a course was run on detecting the deteriorating patient. This supported the need to take and record respiratory rate. The course had become mandatory training about the deteriorating patient for both RNs and doctors within her organisation; she felt that the training had:

...changed a mindset especially people like me who have been here forever but I am always open to change. I just need that reasoning and why and what the expectations are as well. (Participant 1, page 5)

Participant 2 discussed education on the use of PCAs and epidurals highlighting how it was a standard requirement for respiratory rate to be taken at regular intervals when patients are on this type of medication regime (Participant 2, page 2). She also spoke of colleagues not taking and recording respiratory rate on patients that they deem stable, stating:

maybe there is a lack of understanding around physiology and how important it is to do a respiratory rate. (Participant 2, page 2).

Participant 2 also discussed her colleagues’ understanding of the importance of the taking and recording of respiratory rate recording, stating:

I guess it comes back to the individual nurse, I would say in general the nurses have an understanding it is important, as in how vital it is. (Participant 2, page 3).

These comments indicate that respiratory rate taking and recording can be learned at different times in a nurse’s career. It appears that there is the need for a more in-depth understanding of the recording of respiratory rate and where it fits in the physical assessment process. Educators may need to reflect on the way that they can bridge the theory to practice gap here. Also, there may be a need to review how education reflects the changes within healthcare, for example the increasing use of technology and tools that are used to support assessment of the patient such as the EWS system.

4.10 Equipment

The use of equipment was highlighted in the data as having an impact on the taking and recording of respiratory rate. Electronic monitoring equipment is now available that enables the
RN to be able to take other vital signs, such as BP and pulse, but it does not measure respiratory rate. Therefore, the patients’ respiratory rates still need to be completed manually. Prior to the introduction of electronic monitoring equipment in to general wards, normal practice would be to complete all observations manually. This would involve the pulse being taken manually; a RN would then continue counting the respiratory rate once the pulse was completed. This ensured that the patients were not aware that a nurse was monitoring their respiratory rate. The electronic monitoring equipment is also a faster process in completing BP, pulse and temperature, taking 10-15 seconds to complete the monitoring without the nurse needing to touch the patient. As one RN explained:

Well it is all done automatically on a dinamap [electronic observation machine] unless we know that someone is on digoxin or something we would do a manual heart rate...It is all recorded on the machine, it helps us in our day. (Participant 4, page 2).

It would appear, therefore that the use of electronic monitoring equipment to record some vital signs has become an obstacle to the taking and recording of respiratory rate. As Participant 6 observed:

I think that it is because the machine does not do respiratory rate.
( Participant 6, page 1)

Participant 1 also discusses the use of equipment in association with observation recording. She stated:

...but I think this is part of that time thing, you’ve got to stop and take that time, you’ve got to watch the patient and pretend you[are] not watching. It is a little more, you know, it doesn’t just go on a machine. That is the other thing. You put on your pulse oximeters, you put on your blood pressure, and you push a button so that is all done for you. (Participant 1, page 2).

A watch is the only piece of equipment required to complete the taking and recording of respiratory rate. A fob watch (a watch that is worn on the uniform rather than wrist) is a symbol commonly associated with RNs and in the past was a standard component of a RN’s uniform. In two interviews the lack of a watch for the counting of respiratory rate was raised. Participant 9, for example said:

I know some of my colleagues recorded it but do not have a watch to count it. (Participant 9, page 2).

The lack of a watch does raise the question, how could the RNs take and record an accurate respiratory rate?
It appears that using electronic equipment for the monitoring of other vital signs such as BP, pulse and temperature has become a barrier for respiratory rate to be completed. Also, the lack of standard equipment, i.e. nurses no longer routinely wearing a watch with a second hand, is also preventing an accurate record of the patient’s respiratory rate.

4.10 EWS & policy

Introduction of the EWS systems to hospitals has seen a volume of research to support the importance of the respiratory rate as an early indicator of the deterioration of a patient’s condition (Kenward et al., 2001; McQuillian et al., 1998; Subbe et al., 2001; Robb & Seddon, 2010). As the EWS was established in the hospital where three of the interviewed nurses were working, they were able to reflect on the impact of its introduction. One of the RNs highlighted this in her responses during the interview, that EWS had improved the taking and recording of respiratory rate. She stated:

*I think it has definitely helped, we do have regular audits so I am aware that it is not 100% but is has definitely helped.* (Participant 3, page 2).

Participant 2 also stated that the taking and recording of respiratory rate has improved with the implementation of the EWS,

*You know the EWS came in a couple of years ago before that it was not as frequently recorded.* (Participant 2, page 1)

She continued,

*I do think that people have got a bit better about doing respiratory rate since the EWS came in.* (Participant 2, page 3).

Participant 1 stated:

*My colleagues do the respiratory rate again because of the EWS, it has been driven really hard here... but some colleagues do still miss it.*

(Participant 1, page 1-2)

However, it was also noted that EWS had not necessary improved the understanding of why taking and recording respiratory rate was necessary. Participant 1 highlighted in her interview that:

*I want to be positive, the recording of respiratory rate has improved and the biggest thing has been the EWS. Not because people have thought that we should do this as it is better practice for our patient outcome, but it is driven by EWS. It is instilling that realisation that you need to do that.*

(Participant 1, page 6).
Participant 2, who had worked in an area where EWS had been part of the environment for two years, stated:

> Maybe the lack of understanding of what the respiratory rate means, like maybe there is a lack of understanding around physiology and how important it is to do a respiratory rate. (Participant 2, page 2).

Participant 3 felt that, in her work environment, the introduction of EWS and the subsequent auditing to drive compliance to the EWS had made respiratory rate taking and recording more task focused:

> [more] task orientated to be honest for a lot of people; I do think for a lot there is still not quite, probably, the realisation to why you are doing it. (Participant 3, page 2).

Participant 3 continued her discussion on the introduction of EWS to her hospital, stating:

> I know when the EWS [was] introduced where we work there was a lot of why are they doing it and almost mistrust which was quite surprising. And we were asked to sign a piece of paper to say that we understood why it was being introduced and we would endeavour to adhere to it and all this and people refused to sign them. (Participant 3, page 3).

Participant 1 described how the EWS system, when introduced into her hospital, caused issues with the respiratory rate trigger score in the system used in their area. She said:

> The no [EWS trigger] score for respiratory rate is 9-14 and ... the problem was the [respiratory rate of] 14 because the 15-16 [respiratory rate] mark is not really abnormal, as such, in the majority. A lot of our inpatients ... score a 1. [This does not require]... to be activated [to the doctors] but often [the respiratory rate score of 1] is with something else and it does [require activation to the doctors]...I still don’t know because I would still say most of our adults’ [respiratory rate] here would sit between 14 and 16, you know, when they are okay obviously. (Participant 1, page 2).

The introduction of EWS has seen an improvement in nurses’ compliance to the recording of respiratory rate. However, it does not necessary follow that the taking and recording of respiratory rate is being completed consistently or that the understanding of the rationale for respiratory rate has improved. Also, some RNs mistrust the trigger scores for the respiratory rate within the EWS system. The trigger score is set to indicate early in deterioration of a patient, therefore the score is quite sensitive, sitting on the higher side of normal for a respiratory rate. This causes the RN to disagree with the respiratory rate score in an EWS system which is possibly related to their need to make autonomous decision on their assessment of the patient.
4.12 The role of respiratory rate in nursing management

One of the potential reasons that respiratory rate is not taken or recorded could be that it is not valued by the RN as a primary assessment tool for adult patients. Participant 1 discussed why her colleagues do not take and record respiratory rate, stating:

...they haven’t seen it as a vital sign as in blood pressure and pulse.

(Participant 1, page 2)

Later in the interview she added:

...the respiratory rate, I do think that it is bottom of the rung. Sometimes, as much as I don’t want to say that. (Participant 1, page 6).

Participant 7 discussed her thoughts on when her colleagues failed to record or take respiratory rate:

...you look on the [observation] sheet [and] quite often there will be big gaps where there are BP and pulse, not there are respiratory rate.

(Participant 7, page 1)

Participant 4 suggests:

...we might get a little bit lazy in doing respiratory rate. (Participant 4, page 1).

Whilst it is not vocalised openly as a reason, the fact that it is not completed as standard with the BP and pulse indicates how respiratory rate is not as highly valued. Whilst there is some organisation pressure in the mode of audits to drive compliance, there also appears to be a little or no peer/colleague pressure for the completion of the taking and recording respiratory rate. Socialisation into non-complaint practice was alluded to in the interviews in which it was suggested that it is accepted practice for nurses not to complete respiratory rate.

Participant 2 discussed the taking and recording on the PCA forms in her environment:

I check our PCA forms and sometimes it is the night staff who haven’t written a resp rate. And I have never asked them why because you never see them. (Participant 2, page 2).

Participant 4 spoke of her experience working with a doctor in a complex situation with a deteriorating patient and respiratory rate was not taken or recorded. The doctor had not instructed this to happen either. She stated:

Yeah we are pretty good. The only time it has really been a problem is if something untoward happens with a patient, and being the RN you sort of tend to follow the doctor’s instructions. But I am sure you get the first time
that [respiratory rate] is missed but once the patient becomes more stable you redo the respiratory rate if you have missed it. (Participant 4, page 2).

The lack of questioning over non-completion of the taking and recording of respiratory rate by peers and colleagues can lead the RN to believing that it is acceptable to not comply. Combined with a lack of understanding of the physiology of the respiratory rate, this could lead to apathy within RN practices around the issue.

4.13 Conclusion

This chapter has reported the analysis of the data gained from the interviews with nurses regarding their experiences related to not taking and recording respiratory rate. By collecting the data into themes a deeper understanding has allowed us to reflect on the reasons why nurses do not take or record respiratory rate in certain circumstances.

Within the data we have identified ten themes that influence the RN to not take and record respiratory rate. These were: the frequency of respiratory rate recording; missed observations; time constraints, interruptions; estimation of respiratory rate; experience; education; autonomy; equipment; EWS and the value of respiratory rate in the nursing management. These results will now be further discussed in the next chapter.
Chapter 5

Discussion

This chapter aims to discuss the key themes highlighted in the previous chapter. The themes have been linked together into three main discussion points; these are: the value of respiratory rate to patient management; technology; nursing practice and culture. All of these elements appear to create barriers that prevent the RNs from taking and recording of respiratory rate.

5.1 The Value of Respiratory Rate

Since the introduction of track and trigger systems (e.g. EWS) within acute healthcare organisations, the nursing practice of taking and recording of respiratory rate has increased (Kenward et al., 2001; Ryan, Cadman & Hann, 2004; Butler-Williams et al., 2005; Smith, 2008). Within these studies it has been reported that prior to the introduction of these systems RNs did not consistently take or record the respiratory rate (McQuillian et al., 1998; Buist et al., 1999; Robb & Seddon, 2010).

Within this study, three of the interviewed participants came from a hospital setting where an EWS system had been in place for two years. These participants indicated that RNs within their work environments still do not consistently take and record respiratory rate. One of the factors cited for the inconsistency was that the RNs using the system had difficulty trusting the scoring system applied to the respiratory rate. The participants discussed that in ward areas the normal respiratory range within the EWS system did not reflect what RNs assessed to be a normal respiratory rate for an individual patient. The participants discussed using visual assessment of the patient as a decision making tool, more than relying on the EWS system. If the patient's condition appeared to be unchanged the RNs were reluctant to refer this on for a medical review as prescribed by the EWS policy. This mismatch of what the RNs perceive to be normal for the patient and what is normal within the EWS system has lead to mistrust of the EWS system. With the introduction of EWS systems organisations have audited nurses’ compliance to help drive consistency in the system. As already discussed this has seen an improvement in the taking and recording of respiratory rate. However, as indicated in this study it has not necessary improved the value that RNs place on respiratory rate taking and recording for the management of patients.

Hogan (2006) discussed how one of the rationales for the not taking and recording of respiratory rate is related to the lack of understanding of the technique of taking the rate. Best practice advocates that the manual taking and recording of respiratory rate is to count it for one full minute (Jevon & Ewens, 2007; Hunter & Rawlings-Anderson, 2008; Massey & Meredith, 2010). The successful completion of taking the respiratory rate requires the patient to be unaware that his or her respiratory rate is being monitored (Massey & Meredith, 2010). The patient’s awareness that the process is taking place can impact on the accurate result of the respiratory rate (Mulryan, 2011). Participants in this study discussed being interrupted by patients and others on the ward whilst taking and recording respiratory rates. These
interruptions were usually in the form of either someone talking to the RNs while they were counting or distracting them away from a patient’s bedside whilst they were taking and recording the respiratory rate. These distractions could result in the RN prioritising her attention to other patients or nursing tasks and not completing the respiratory rate taking and recording. These interruptions were highlighted by participants in this study as making the process of taking the patient’s respiratory rate difficult. Also highlighted in the study was that these interruptions have led to some RNs estimating the rate and recording this on the observation chart.

Meredith and Massey (2010) highlighted the need for a subtle, sixty second assessment of the respiratory rate. Results of this study indicate that this might be difficult in practice. One of the RNs interviewed took the respiratory rate for one minute. The remaining RNs completed the counting of respiratory rate by limiting it to 15 seconds and multiplying the number by four, recording this final figure as the respiratory rate over one minute. The participants within this research have adapted the assessment process to their own working environment and have shortened the assessment to a smaller snapshot of respiratory rate.

The management of the patient receiving treatment, which either involves medication administration or post surgical procedures, requires an increase in the frequency of vital sign recording (Zeitz, 2005). Practice within this study highlighted that this approach to patient management was not consistent within this group of research participants. The decision to exclude the taking and recording of respiratory rate for patients receiving medication, with respiratory depression side effects or post-operative management, is difficult to explain. Whilst policies and evidence-based practice indicate that it is a safety requirement, some of the RNs involved in this study reported that it was not recorded as frequently as required. There are a number of different explanations for these omissions. It could be that the RN is comfortable with the patient’s condition and does not feel that the time spent taking and recording the respiratory rate adds value to the management of the patient. Or, as indicated by one participant within the study, the RN may not appear to understand the physiology and the impact that medication, such as PCA, will have on the patient. With the patients undergoing clinical procedures or medication administration the RN is sighting the patient frequently for monitoring of all vital signs. This frequent sighting of the patient allows the RN to pick up on visual clues should the patient’s condition change. Using visual clues is an accepted assessment method, however the changes in respiratory rate can be quite subtle and by not measuring the rate the RN may not see any changes early enough to prevent harm to the patient.

It is evident from this research that RNs value the taking and recording of respiratory in different ways. On the whole there have been improvements in the taking and recording of respiratory rate since the introduction of EWS, however this does not imply that there has been an increase in the knowledge around the physiology of respiratory function. The lack of compliance to the taking and recording of respiratory when advocated by policies (clinical procedures, medication
administration) implies that the RNs do not value its role in the assessment/management of patients.

5.2 Impact of technology

The use of technology has advanced rapidly within healthcare in the last few decades. In the last twenty years we have seen the introduction of electronic equipment to monitor patients within general ward areas. As reflected in this research, the use of this technology is believed to reduce the time RNs spend taking and recording BP, pulse, temperature and oxygen saturations. The taking and recording of vital signs compliments a physiological assessment in the gathering of data on the patient’s condition. Most assessments are based on a framework; a common framework advocates the use of, “look, listen and feel”. This framework incorporates a visual, audio and tactile assessment of patients and the process is advocated as best practice (Jevon & Ewens, 2007; Piquet, 2005; Hunter & Rawlings-Anderson, 2008). The introduction of technology has isolated the respiratory rate, leaving it the only vital sign that is taken manually. Also, the electronic observation equipment allows the RN to complete all of the other vital signs without touching the patient. The introduction and acceptance of the use of the electronic equipment appears to have sanctioned RNs to not touch patients. This shift in practice sees a loss of data originally obtained by touching the patient (warmth, perfusion, etc.), as respiratory rate recording is required to be taken subtly, whilst the nurse is holding the hand of the patient pretending to be taking their pulse. The shift away from touching the patient has again isolated the respiratory rate recording as it is perceived extra time is required to complete this process. Within this study there is evidence to support the contention that introduction of electronic equipment has isolated the taking and recording of respiratory rate. This isolation has led to respiratory rate not being consistently taken and recorded, or being estimated by the RNs.

Assessment frameworks advocate the use of “look, listen and feel” as an assessment method (Jevon & Ewens, 2007). This assessment method, ”look, listen and feel” means that the RN would look at the patient for visual clues of changes or conditions, e.g. cyanosis, listen for sounds, e.g. wheezing, and touch the patient to assess for warmth, pulse rate and volume, etc. The introduction and use of electronic observation machinery has moved RNs away from this assessment framework in practice. The introduction of electronic equipment for completion of all vital sign taking and recording bar respiratory rate appears to have led to a behaviour change within nursing practice. The tactile assessment of the pulse is no longer completed regularly by RNs. The use of the electronic observation equipment has reduced the occasions that a tactile assessment of patients occurs, thus creating a behaviour change away from best practice. Does there need to be a move away from electronic observation equipment for the basic assessment of patients?

Further, Hogan (2006) highlighted the use of electronic observation machinery as a barrier to the taking and recording of respiratory rate. Initial studies in the early 1990s indicate that the respiratory rate taking and recording was always limited (Buist et al., 1991). Whilst these studies
do not indicate whether electronic equipment was a factor involved, the access to this type of equipment was potentially limited at that time. Moreover, Hogan (2006) highlighted that the RNs had issues accessing the electronic equipment. Comments by those interviewed for this study indicate that respiratory rate has never been valued as much as pulse and blood pressure. Research has indicated that it is the introduction of electronic observation equipment that has become a barrier to taking and recording of respiratory rate (Hogan, 2006). However, it appears that the taking and recording was limited prior to the introduction of the electronic observation equipment to ward areas (Buist et al., 1991).

5.3 Nursing Practice

Hogan (2006) highlighted how clinical decision making relied on nursing intuition and clinical assessment. Hogan (2006) defined intuitive practice, citing Pyles and Stern (1983) as a reliance on experiencing the situation and reflection on past experience, patient cues, previous nursing knowledge and gut feelings. Benner (1984) described the experienced nurse as being a nurse who can reflect and refine preconceived notions and theory through clinical situations that have been encountered during their nursing practice. Benner (1984) goes on to discuss clinical situations as complex and cannot always be encapsulated by theory. Therefore, the experienced nurse uses intuition based on prior experience and theory to assess situations and act upon the results to obtain the best outcome for the patient. This was confirmed in this study with participants acknowledging that they have used intuition to decide on the need to take or record the respiratory rate. However, by not taking and recording the respiratory rate they are not supporting their intuition with empirical evidence, as promoted by Tanner (2006). Tanner (2006) discussed the need to support intuition with an analytical approach.

Hogan (2006) highlighted lack of knowledge as one of the three primary reasons why respiratory rate was not taken or recorded. Hogan’s study (2006) identified that, in some cases, academic institutions in the UK held educational session on respiratory rate taking and recording in separate sessions to that of the other vital sign training. However in this current study all participants acknowledged the importance of taking and recording of respiratory rate. Also, all the participants were taught how to take and record respiratory rate within their nurse training alongside being taught the other vital signs recording. However, similar to Hogan’s study, there is evidence to support the suggestion that the relevance of respiratory rate as the primary indicator in the detection of deterioration is not well covered at this point.

Also noted in the research study was that some RNs do not wear a watch to work which is a vital component that enables the counting of the patient’s respiratory rate. The lack of a watch raises the question whether these RNs would be able to complete the task of taking and recording respiratory rate accurately. It is hard to explain why RNs are not prepared to complete their nursing duties by having a watch available for use. Again, the lack of a watch could be linked to the value that RNs do not place on the taking and recording of respiratory
rate. It could be argued that if RNs saw the taking and recording of respiratory as an important component of their nursing practice a watch would be worn.

Tanner (2006) discussed in her study on a clinical judgement framework that the work environment impacts on the RNs clinical decision making. Tanner’s extended definition of the work environment included the influence that colleagues exert over it and the orientation to the area that individuals receive to the place. Within this study it was suggested that doctors and other colleagues could impact on the practice of nurses taking and recording respiratory rates. Street (1995) argues that the increasing workload of the RN has impacted on the RNs ability to know their patients, as advocated by Tanner (2006). Increasingly, the healthcare profession is seeing nurses working more part-time hours and the length of hospital stay of patients are decreasing as acuity of patients increases. The patients that remain in hospital for longer lengths of time tend to be those who require more intensive support for discharge, such as rehabilitation services, domestic support at home and/or admission to rest home facilities. It could be argued that the pattern of work hours and the change in focus from hospital-based care to community-based care has impacted on the RNs ability to know their patients well. This would impact on the model of clinical judgement that Tanner (2006) advocated in the nursing management of the patient.

5.4 Conclusion

Some believe that RNs do not take and record respiratory rate for very simple reasons, such as electronic observation equipment does not do it. However, this study has indicated that the practice of not taking and recording respiratory rate is a complex issue. Hogan (2006) alluded to five main reasons for nurses not taking and recording respiratory rate. These were managing the nursing work, learning nursing skills, clinical decision making, the use of electronic equipment and respiratory monitoring. This study has indicated all of these areas continue to be barriers to the taking and recording of respiratory rate. Respiratory rate taking and recording is the only manual measure remaining of the vital signs. This appears to make it a reason for not being taken and recorded. However, the taking and recording of respiratory rate appears to have always been inconsistent. Therefore, it appears that the not taking and recording of respiratory rate is more to do with the value that RNs place on it for patient management. It is possible that the low value that RNs place on the respiratory rate involvement in patient management is due to their possible lack of full understanding of the physiology of respiratory rate. It does appear, though, that some RNs are making conscious decisions to not take or record respiratory rate at certain points in the patient’s visits to hospital.
Chapter 6

Conclusion

6.1 Introduction

This research project was undertaken to investigate what influences RNs to not take and record a patient's respiratory rate. The method used was an exploratory descriptive qualitative study that using semi-structured interviews to investigate RNs experiences around this topic. The analysis of the data was guided by Thomas's (2006) general inductive approach to thematic analysis and ten themes were identified. The key concluding points from this research study are discussed in this chapter. Overall it was concluded that the reasons why RNs do not take and record respiratory rate are more complex than anticipated and there are many influences that impact on the RNs decision to not complete the practice.

Four main conclusions can be made from this research. The first concerns the impact that electronic observation equipment has on the taking and recording of respiratory rate; the use of the equipment isolates respiratory rate as the only manual vital sign. Whilst this has been summarised by many as a reason that respiratory rate is not taken or recorded (Hogan, 2006), this study has indicated that respiratory rate was still not taken or recorded on a regular basis prior to the introduction of EWS into hospitals. The introduction of EWS into hospitals occurred at a similar time as the increased availability of electronic observation equipment in hospitals. Therefore respiratory rate was inconsistently taken and recorded prior to the introduction of electronic observation equipment.

The second conclusion is that respiratory rate measures do not seem to be valued by RNs as an important vital sign. An example of this undervaluing is indicated when a patient has a PCA for pain management, which requires frequent monitoring of all vital signs. In this study it was indicated that respiratory rate was still not taken or recorded on a regular basis. This implies there remains a lack of understanding amongst RNs of the physiology surrounding respiratory function and assessment.

The third conclusion concerns the change in nursing practice, highlighted in the study by the reporting of constant work interruptions and time constraints placed on the RN. Also contributing to changes in nursing practice is the observation that some RNs do not wear a watch to undertake the taking and recording of respiratory rate. This is a change from practice in previous years where the fob watch was seen as a symbol of nursing.

The fourth conclusion is that despite the introduction of EWS systems internationally, this study highlighted that in certain situations respiratory rate is not taken or recorded. One of these situations was around the administration of analgesia which is known to compromise a patient’s respiratory function.

These conclusions will now be discussed in more detail.
6.2 Role of technology in nursing practice

The use of electronic observation equipment has isolated the respiratory rate as the only vital sign that is completed manually on most occasions. This has led researchers such as Hogan (2006) to surmise that the use of electronic observation equipment influences RNs to not take or record respiratory rate. This assumption by researchers is difficult to support as there is limited evidence that respiratory rate was taken and recorded consistently prior to implementation of the EWS, which started to appear in healthcare journals in the 1990s. The introduction of electronic observation equipment commenced in the 1990s, which matches when the early work on EWS was introduced. Therefore we are unable to confirm whether the introduction of electronic equipment changed RNs practice in the taking and recording of respiratory rate. Electronic observation equipment may be a small factor that influences the nursing practices of not taking and recording respiratory rate. Whilst it plays a role in the not taking and recording of respiratory rate it could be argued that it is not the most important.

Whilst outside of the scope of this research it is important to acknowledge the impact that the introduction of electronic observation equipment has had on patient management/assessment within hospitals. The change from manual pulse and BP has lead some RNs to not use touch within their physiological assessment. This behaviour change within nursing practice has implications for nursing management and educational practice. The physiological data that touch gains for the management of the patient is vitally important. For example a patient may have developed an irregular pulse post-operatively but the use of electronic observation equipment would not identify this information. To ensure that a safe physiological assessment is completed without isolating respiratory rate taking and recording it would be appropriate to consider returning to manual observations and removing the electronic observation equipment. This practice has been trialled in a hospital in the UK where a reduction in cardiac arrests has been noted (Snow, 2011).

6.3 Nursing knowledge of respiratory function

One of the noticeable results from this study is that RNs do not appear to always understand the physiology of respiratory function. It was indicated by the participants that when a patient is either receiving medication or post-clinical procedure respiratory rate is not taken and recorded in accordance with policy. Both of these incidents will impact on respiratory function and safe practice requires constant and consistent taking and recording of the patient’s respiratory rate. As this was reportedly not always occurring one could assume that this is due to a lack of understanding of the impact on respiratory function. Not taking or recording respiratory rate for patients who have undergone clinical procedures or who are receiving medication, for example PCA, implies that RNs do not value the role of respiratory rate in the management of these patients. This would suggest again that RNs do not fully understand the role that respiratory rate plays in monitoring of respiratory function. For there to be an improvement of respiratory
rate taking and recording there needs to be an improvement in RNs knowledge of the underlying physiology. It could be argued that it is not a lack of understanding that leads the RN to not take or record respiratory rate in situations where high levels of monitoring is required, instead, the lack of respiratory rate taking and recording could be more frequently due to the time constraints and interruptions that RNs experience. However, most RNs will complete a practice if they see the value of it for their patients. So the lack of taking and recording of respiratory rate indicates an undervaluing of the practice. Not valuing the practice of taking and recording respiratory rate suggests that RNs do not understand that respiratory rate is an early indicator of respiratory dysfunction. Efforts to improve understanding of this issue needs to be lead by nurse education intuitions and healthcare organisations.

6.4 Changing face of nursing practice
This study highlights some changes that have occurred in nursing practice and the influences surrounding them. Highlighted in this study were the constant interruptions to care nurses experience due to workload and time constraints and how these have impacted on current nursing practice. The increased requirements for healthcare have seen both the RNs workload and acuity of patients increase also. This has impacted on the time the RN has to consistently undertake respiratory rate taking and recording.

Also noted in the study was the practice of not having a watch to complete taking and recording of respiratory rate. This highlights a change in priorities with nursing practice; fob watches were standard requirements for nursing practice in previous years.

6.5 EWS impact on the taking and recording of respiratory rate
The introduction of EWS systems has done much to improve the management of deteriorating patients. The research demonstrates that there has been an improvement in the taking and recording of respiratory rate with the introduction of EWS (Kenward et al., 2001). However, it is noted from this study that respiratory rate taking and recording has remained a task orientated practice. This implies again that RNs do not value its use in the management of patients and that they do not understand its role in the early detection of the deteriorating patient. There needs to be a move away from the task orientated taking and recording of respiratory rate to ensure that the patient is managed appropriately. Further work around RNs understanding of the role of respiratory rate in the early detection of the deteriorating patient is warranted.

Discussed above were the four key conclusions from the study. These were the role of technology on nursing practice, nursing knowledge of respiratory function, the changing face of nursing practice and EWS impact on the taking and recording of respiratory rate. Following sections include the researcher’s personal reflection, limitations of the research and recommendations from the research.

6.6 Researcher’s personal reflection
On commencement of this research I thought that I understood what influenced RNs to not take or record respiratory rate. Prior to the study I believed that the use of equipment had created a barrier to the taking and recording of respiratory rate. However, due to the study I now feel that the impact of electronic equipment on the practice of taking and recording of respiratory rate is limited. What is more apparent is that the respiratory rate taking and recording has always been limited. The introduction of electronic observation equipment has impacted more on limiting RNs practice of using touch as an assessment tool than it has been a barrier to the taking and recording of respiratory rate. Touch is a key tool that is used frequently to assess an individual’s perfusion, pulse volume and rhythm. Combined with its use as an assessment tool, the benefits of touch as a demonstration of empathy should not be under estimated. It is of concern that RNs are changing their behaviour to practice in a way that dismisses the importance of touch.

Also, I thought that nurses were generally aware of the need for safe practice around the management of patients receiving medication or post-clinical procedures. To me this meant that they were taking and recording on a consistent basis the respiratory rate for the patients who were vulnerable post-operatively or on analgesic medication. However, this study has indicated that this is not always the case and RNs are not consistently taking and recording respiratory rate for this group of patients.

I now understand that what influences RNs to not take and record respiratory rate is a lot more complex than I originally thought. Influences such as the clinical workload, equipment, autonomy, personal clinical judgement, interruptions, EWS systems and understanding of respiratory function all impact on whether the RNs take and record respiratory rate. I know that I can influence nursing practice in my hospital by discussing the challenges that RNs face in educational forums and advocating for the use of manual equipment to enable a complete assessment of all areas for the patient.

The journey on which this study has taken me has enabled me to develop a broader picture of what influences RNs in this area. This study has been a long and challenging journey for me, one that I hope others can benefit from.

### 6.7 Limitations of the research

It is important to acknowledge the weaknesses of this study.

One of the areas that this study could have improved upon lies within the themes that could have been further explored during the telephone interviews. Nursing culture or socialisation within nursing practice was one of the areas that were not fully explored in the interview with the RN participants. The impact that socialisation/ward culture would have on the not taking and recording of respiratory rate needs to be acknowledged and further explored as a contributing factor on nursing practice. Another weakness in the interview questioning that limited the understandings gained from the study was the failure to ask participants to rate the importance
of respiratory rate as a vital sign. Understanding where RNs ranked the importance of respiratory rate taking and recording in comparison to other vital signs would have given more understanding to the value that RNs place on it. The importance of respiratory taking and recording in the management of patients in comparison to the other vital sign recording was an issue that arose during the interviews. However as questions had not been asked about the importance of respiratory rate taking and recording this issue could not be analysed further.

Other limitations of the study stem from the small size of the sample, although the sample size was in line with expectations of a qualitative study (Schneider et al., 2007). Whilst data saturation was reached within the study, it could be argued that a sample size of ten RNs is a small reflection of the nursing population.

Another limitation also involved the research sample. Participants were recruited from three hospitals in the Central Region of New Zealand. This again could be argued is not a full reflection of the nursing population.

If this study was to be repeated a larger sample size including more hospitals either nationally or internationally may increase the reliability of the study and could induce further evidence.

6.8 Recommendations for nursing practice

Firstly, best practice advocates for a comprehensive assessment to be completed on all patients by RNs. Failure to use “touch” as an assessment tool is not enabling a comprehensive assessment to be completed as information is being missed. Therefore, it is recommended that electronic observation equipment be removed from hospital wards and a return to manual vital sign recording take place.

Secondly, a review of educational practices both within nursing degrees and hospitals to establish what is being taught to nursing students and RNs. The lack of understanding of the respiratory function as an early indicator for detecting deterioration in patients medical condition, post medication administration and/or clinical procedures needs to be addressed. Current practice seems to be putting our vulnerable patients at risk and this practice needs to change.

6.9 Recommendations for further research

The first recommendation from this study is for further research to be undertaken in this field. The undertaking of an observation research study would confirm whether the RNs practice of not taking and recording of respiratory rate was detrimental to the patient. An observation study would also give an idea of the actual practice in the wards of taking and recording respiratory rate and if the practice is safe for the patient. It could be that the clinical judgement of RNs is appropriate on the occasions that respiratory is not taken and recorded. The study would also be able to note the workload and interruptions that are occurring at the time. This observation study would support nursing practice as it would enable the “telling of the story” accurately at the time it was occurring.
6.10 Conclusion

This study set out to understand what influences nurses to not take or record respiratory rate. This was completed by interviewing RNs about their experiences and thoughts on the topic. The issues surrounding not taking and recording respiratory rate were found to be more complex than expected and had many facets to them. Once the data was collected from the participants eleven themes were found that influence nursing practice in this area. These themes were: the frequency of respiratory rate recording; missed observations; time constraints; interruptions; estimation of respiratory rate; experience; education; autonomy; equipment; EWS policy; and the value of respiratory rate in the nursing management. These themes have enabled the researcher to discuss what influences RNs to not take and record respiratory rate in some depth and to make recommendations to support changes needed to move nursing practice forward in the future. However, there is more work to be done in this area to more fully establish an understanding of workplace environment and the barriers this presents to RNs in the taking and recording of respiratory rate.
References


# Appendix 1

## Interview Schedule

### Interview Schedule (Table One)

<table>
<thead>
<tr>
<th>1. Demographics:</th>
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<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>How many years experience do you have as an RN?</td>
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<tr>
<td>How long have you worked in this area?</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Can you tell me approximately how frequently do you record a patient’s respiratory rate? (in percentage of time, for example 80%)</th>
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<table>
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<tr>
<th>3. Can you recall any time where you felt you should have but did not record a patient’s respiratory rate?</th>
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<tr>
<td>Tell me about that time/those times, what went through your mind, what reason did you give yourself for not doing it and how did you feel about the decision?</td>
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<tr>
<td>Have there been other times?</td>
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<tr>
<th>4. What do your colleagues do?</th>
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<tr>
<th>5. Have you ever approximated the respiratory rate?</th>
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<tr>
<td>What were the circumstances at the time?</td>
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<tr>
<th>6. How do you record respiratory rate?</th>
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<tr>
<th>7. Do you have an Early Warning Scoring system in your ward area?</th>
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<tr>
<td>Has this influenced your taking and recording of respiratory rate?</td>
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</table>
Appendix 2
Information for Research Participants

Date: 22<sup>nd</sup> July 2011

<table>
<thead>
<tr>
<th>Project Title:</th>
<th>An investigation of what influences nurses’ practice to not take and record patient’s respiratory rate.</th>
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</thead>
<tbody>
<tr>
<td>To:</td>
<td></td>
</tr>
<tr>
<td>Researcher(s):</td>
<td>Helen Garton</td>
</tr>
<tr>
<td>Affiliation:</td>
<td>Eastern Institute of Technology</td>
</tr>
</tbody>
</table>

Description of the research:

This is an investigation into what influences nursing practice to take or not take and record a patient’s respiratory rate. It is qualitative research which will involve data collection via telephone interviews.

The aim of the study is to obtain an understanding of current practice, to identify key themes and factors that influence nursing practice around the topic. The findings will inform nursing of our practice and what improvements/resources are required to support nursing practice surrounding respiratory rate taking and recording.

What will participating in the research involve?:

Agreement to participate in this study can be acknowledged via email. If you agree to participate, once informed consent is obtained I will arrange a time to interview you by telephone. The informed consent can be returned to me via fax or post.

The themes for the questions will be fax or emailed to you prior to the interview. The interview questions are open-ended questions about your experience and practice in the taking and recording of respiratory rate. The interview should take no longer than one hour at a convenient time for both you and the researcher. No participant will be identified and the participants will be labelled 1, 2, 3, etc to ensure confidentiality is maintained.
What are the benefits and possible risks to you in participating in this research?

The nursing profession will benefit from the study in that it has the potential to provide a better understanding of nursing practice regarding the taking and recording of patient respiratory rate. This in turn can provide benefits to patient care.

The findings from the research may be published in the future.

There are no perceived risks to you as participants. There will be no way to identify you or your employer in the reported research finding and only the researcher will be aware of your identity.

Your rights:

- You do not have to participate in this research if you do not wish to.
- If you are a student at EIT and decide to take part, you can withdraw from the research at any time and this will not affect treatment or assessment in any courses at EIT.
- If you are a patient or under the care of students or staff from EIT, you can withdraw from the research at any time and this will not affect your treatment or assessment in any way.
- Once you have completed the research you have a <<specify an appropriate length of time>> period within which you can withdraw any information collected from you.
- You are welcome to have a support person present (this may be a member of your family/whanau or other person of your choice)
- You may request a summary of the completed research

Confidentiality:

Your confidentiality will be guaranteed and there will be no way to link you or your employer through the research findings.

Identifiable information about you will not be made available to any other people

Raw data will be kept in a locked environment and destroyed on completion of the study. All other data will be kept locked and destroyed after five years.

If you wish to participate in this research, or if you wish to know more about it, please contact
<table>
<thead>
<tr>
<th>Contact Person:</th>
<th>Helen Garton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work phone #</td>
<td>06 8788109 ext 4534</td>
</tr>
<tr>
<td>Mobile phone #</td>
<td></td>
</tr>
<tr>
<td>Email address</td>
<td><a href="mailto:helen.garton@hbdhb.govt.nz">helen.garton@hbdhb.govt.nz</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supervisor Name(s):</th>
<th>Shona Thompson</th>
</tr>
</thead>
<tbody>
<tr>
<td>(if applicable)</td>
<td></td>
</tr>
<tr>
<td>Work phone #</td>
<td>974 8000 ext 6116</td>
</tr>
<tr>
<td>Email address</td>
<td><a href="mailto:sthompson@eit.ac.nz">sthompson@eit.ac.nz</a></td>
</tr>
</tbody>
</table>

For any queries regarding ethical concerns, please contact:
Professor B. Marshall, Chair, Research Approvals Committee, EIT. Ph. 974 8000
CONSENT FORM

Project Title: An investigation of what influences nurses’ practice to not take and record patient’s respiratory rate.

Researcher(s): Helen Garton

I have read and I understand the Information for Research Participants sheet dated 22nd July 2011 for volunteers taking part in this study. I have had the opportunity to discuss this study and am satisfied with the answers I have been given.

I understand I am able to withdraw all of my information until 1st May 2012

I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the testing at any time and this will in no way affect employment

I understand that my participation in this study is confidential and that no material which could identify me will be used in any reports on this study.

I have had time to consider whether to take part, and know who to contact if I have any questions about the study.

I agree to take part in this research

Yes       No

I consent to my interview/activity being videotaped/audiotaped
I wish to receive a summary of the results

Signed: _______________________________________________

Name: ________________________________________________

Signature of Research Participant’s Support Person (if applicable)

____________________________________________________

Date:  _____________________

Witness:  _______________________________________________

I as researcher(s) undertake to maintain the confidentiality of information gather during the course of
this research.

Signed_________________________________________________

Dated______________________

This study has been approved by the Central Region Ethics Committee on 30th August 2011, Reference #
CEN/11/EXP/071.
Appendix 4

Expedited Review of Observational Studies Application Form

References in this form to the Guidelines are to the Ethical Guidelines for Observational Studies: Observational research, audits and related activities, National Ethics Advisory Committee, December 2006. Investigators applying for expedited review of low-risk observational research, or of an audit or other activity related to observational research, must have read these Guidelines.

Part A: General – is expedited review appropriate or required for this study?

<table>
<thead>
<tr>
<th>1 Title of project</th>
<th>An investigation of what influences nurses' practice to not take or record a patient's respiratory rate.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Investigators</td>
<td></td>
</tr>
<tr>
<td>a) Principal Investigator</td>
<td></td>
</tr>
<tr>
<td>Name:</td>
<td>Helen Garton</td>
</tr>
<tr>
<td>Position:</td>
<td>Nurse educator Nurse Entry to Practice Programme</td>
</tr>
<tr>
<td>Contact details</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td>17 Pufflett Road, Havelock North, Hawke's Bay 4130</td>
</tr>
<tr>
<td>Phone:</td>
<td>06 8778037</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:helen.garton@hbhdh.govt.nz">helen.garton@hbhdh.govt.nz</a></td>
</tr>
<tr>
<td>Brief statement of relevant experience</td>
<td></td>
</tr>
<tr>
<td>Nurse Educator for 4 years, introduced Early Warning Scoring System to organisation.</td>
<td></td>
</tr>
<tr>
<td>b) Supervisor (if student researcher)</td>
<td></td>
</tr>
<tr>
<td>Name:</td>
<td>Shona Thompson</td>
</tr>
<tr>
<td>Position:</td>
<td>Research Supervisor</td>
</tr>
<tr>
<td>Contact details</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td>School of Nursing, EIT, Taranaki, Hawke's Bay</td>
</tr>
<tr>
<td>Phone:</td>
<td>06 974 8000 x 6116</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:stthompson@eit.ac.nz">stthompson@eit.ac.nz</a></td>
</tr>
<tr>
<td>c) Co-investigators (include contact details for each co-investigator)</td>
<td></td>
</tr>
<tr>
<td>Name:</td>
<td>Allannah Meyer</td>
</tr>
<tr>
<td>Position:</td>
<td>Nursing Lecturer</td>
</tr>
<tr>
<td>Contact details</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td>School of Nursing, EIT, Taranaki, Hawke's Bay</td>
</tr>
<tr>
<td>Phone:</td>
<td>06 974 8000</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:ameyer@eit.ac.nz">ameyer@eit.ac.nz</a></td>
</tr>
<tr>
<td>Name:</td>
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<tr>
<td>------</td>
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</tr>
<tr>
<td>Position:</td>
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</tbody>
</table>

**Contact details**

| Address: |  |
| Phone: |  |
| Email: |  |

**Name:**  

| Position: |  |

**Contact details**

| Address: |  |
| Phone: |  |
| Email: |  |

3 **Brief description of project and study design in lay language (refer to Guidelines, paragraphs 6.1–6.10 when describing study design)**

The project is an investigation into nurses practice of when they would not take and record respiratory rate. It is a qualitative, descriptive analysis of nurses' practice surrounding respiratory rate. Data will be gathered via one-off telephone interviews from public hospitals within the designated Central Region of the North Island of New Zealand. The Objectives of the project are too:

1. To understand nurses' perceptions of when it is appropriate to not taking and recording respiratory rate.
2. To demonstrate in which circumstances are nurses not taking and recording respiratory rate.
3. To understand the factors that influence RNs in not taking and recording of respiratory rate, and how the recording of respiratory rate is undertaken.

Participants will be approached for recruited initially by Nurse Educators within their hospital, individuals will then contact the principal researcher independently of the Nurse Educator within their hospital. Informed consent and confidentiality will be maintained by the principal researcher. Raw data collected will be stored in a locked office and destroyed post study, other information will be secured in locked office and destroyed after 5 years.

4 **Key dates**

| (i) Expected starting date | August 2011 |
| (ii) Expected completion date | June 2012 |

5 **Is expedited review appropriate or required for this study? (Guidelines, paragraph 11.12–11.17)**

**a) Observational research**

Is your study:

- a case report or case series  
  - Yes [x]  
  - No [ ]

- a descriptive study  
  - Yes [x]  
  - No [ ]

- a questionnaire or survey for research purposes that does not involve collection of sensitive, personal information  
  - Yes [x]  
  - No [ ]
b) Audit or related activity

(Guidelines: paragraphs 11.7–11.11; 2.4)

Does the study involve any of the following factors?

- Departure from normal care?
  - Yes
  - No
  - [X]

- Secondary use of data without consent?
  Exception: No ethics committee review is required for the secondary use of data for quality assurance, outcome analysis, or resource review done by people employed or contracted by the service provider holding the information.
  - Yes
  - No
  - [X]

- Extra data collected in a health or disability support setting?
  Exception: No ethics committee review is required for the collection of non-sensitive data or an observation in which participants remain anonymous, when undertaken by people employed or contracted by the service provider.
  - Yes
  - No
  - [X]

- Extra data collected outside a health or disability support setting
  Exception: No ethics committee review is required for an innocuous questionnaire or focus group to discuss new forms of care delivery.
  - Yes
  - No
  - [X]

Expand if necessary:

If your audit or related activity involves one or more of the above factors, and does not involve the relevant exception(s), then it is a more-than-minimal risk audit or related activity that requires expedited ethics committee review, rather than no review. If your audit or related review requires expedited review, go to Part B below.

If your audit or related activity does not involve any of the above factors, or if one of more of the relevant exceptions applies, your audit or related activity does not require ethics review (full or expedited) and you are consequently not required to complete this form.

Where a study does not require any ethics committee review, some investigators do nevertheless wish to receive written confirmation of this from an ethics committee. If this is your situation, please indicate this below.

I request a written confirmation that my audit or related activity does not require ethics committee review. NB: If yes, ensure the audit proposal/protocol is attached.

Yes

No

[X]

No

[X]

C) Component of educational qualification

Is your observational study part of an educational qualification that you believe requires timely ethics committee review?

(Guidelines, paragraph 11.15)

Expand if necessary:

This research is for a thesis towards a Masters in Nursing degree at Eastern Institute of Technology. Submission of the thesis is required at the end of June 2012.

Yes

No

[X]
Part B: Expedited review

<table>
<thead>
<tr>
<th>6</th>
<th>Overall risk and benefit (Guidelines, paragraphs 4.8-4.14 and 5.1-5.12)</th>
</tr>
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<tbody>
<tr>
<td>a)</td>
<td>What benefits do you expect this study to provide?</td>
</tr>
<tr>
<td>b)</td>
<td>What risks do you expect the study to pose?</td>
</tr>
<tr>
<td>c)</td>
<td>What steps will you take to minimise expected risks?</td>
</tr>
<tr>
<td>d)</td>
<td>Briefly explain how the expected risks are balanced by the expected benefits.</td>
</tr>
</tbody>
</table>

The nursing profession will benefit from the study in that it has the potential to provide a better understanding of nursing practice regarding the taking and recording of patient respiratory rates. This in turn can provide benefits to patient care.

The study is not expected to pose any risk, information provided in the data collection process will be de-identified and untraceable to individuals involved.

Participant anonymity and confidentiality will be maintained throughout the study.

All risks are considered to be manageable and are outweighed by the potential benefits.

<table>
<thead>
<tr>
<th>7</th>
<th>Collection of information</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Who is information being collected from?</td>
</tr>
<tr>
<td>e)</td>
<td>Directly from individuals? (Guidelines, paragraphs 6.5-6.34)</td>
</tr>
<tr>
<td>If so, how will individuals be identified and approached?</td>
<td></td>
</tr>
</tbody>
</table>

Data will be collected from nurses practicing in public hospitals covered by the Central Ethics Region, other than where the researcher works. Invitations to nurses to be involved in the research will be facilitated by the Nurse Educator in these hospitals who will do so via a general notice.

b) From a third party? (Guidelines, paragraphs 6.35-6.36) | Yes No [x] |
| If yes, what is that party’s relationship to the participant? |

Why is it appropriate to obtain the information from that person?

c) From health records (patient clinical records)? (Guidelines, paragraphs 6.37-6.42) | Yes No [x] |
d) From health records (national database, eg, NZHIS, cancer registry)? | Yes No [x] |
e) From health records (local databases, or disease registries)? | Yes No [x] |
<table>
<thead>
<tr>
<th></th>
<th>b) Identifiability (Guidelines, paragraph 6.4)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Is the information collected for this study:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) De-identified or anonymous data? (if yes, please go to Question 10 below)</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>b) Identified, potentially identifiable, or partially de-identified data? (if yes, what is the justification for the use of identified, potentially identifiable or partially de-identified data?)</td>
<td>Yes</td>
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</tbody>
</table>

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<tr>
<th></th>
<th>8 Consent (Guidelines, paragraphs 6.5–6.15, 6.41)</th>
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<tbody>
<tr>
<td></td>
<td>If the data collected and used in this study are identified, potentially identifiable or partially de-identified, will consent be obtained from the individuals concerned?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>a) If yes, explain the consent process</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) If no, how is the collection and use of the data without the consent of participants justified? (Guidelines, paragraphs 6.42–6.46)</td>
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<tr>
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<th>9 Confidentiality and storage of information (Guidelines, paragraphs 8.1–8.10)</th>
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<td></td>
<td>a) What provisions are made to protect patient confidentiality?</td>
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<td>b) Who will have access to the information gathered as part of this study?</td>
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<td>c) Where, how, and for how long will data be stored?</td>
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<tr>
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<th>10 Māori and ethical issues Does the study raise issues under any of the sections of the Guidelines of particular relevance to Māori? (See especially Guidelines, paragraphs 4.3–4.5, 5.7, 6.39.)</th>
<th>Yes</th>
<th>No</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>If yes:</td>
<td></td>
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<tr>
<td></td>
<td>a) How will those issues be addressed?</td>
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</tbody>
</table>
b) Describe the consultation that has taken place and its outcome

If no, briefly explain:

11 Any other ethical issues

Does this study raise any other ethical issues? Yes [ ] No [ ] X

If yes, describe these issues and explain how you have responded to them, or plan to do so.

---

**Declaration by Principal Investigator**

The information supplied in this application is, to the best of my knowledge and belief, accurate. I have read the Ethical Guidelines for Observational Studies: Observational research, audits and related activities and considered the ethical issues involved in this research and believe that I have adequately addressed them in this application. I understand it is my responsibility to meet any institutional approvals or requirements prior to commencing the study.

Name of Principal Investigator (please print): Helen C Gerton

Signature of Principal Investigator: 

Date: 3rd July 2011

---

**Declaration by Supervisor**

I have reviewed the application and read the Ethical Guidelines for Observational Studies: Observational research, audits and related activities. I confirm that the student has considered the ethical issues and accurately completed the application. I take overall responsibility for the study including ensuring all institutional requirements have been addressed prior to its commencement.

Name (please print): 

Signature: 

Date: 

Institution: 

Designation: 

---

**Documents checklist**

<table>
<thead>
<tr>
<th>Document</th>
<th>Attached</th>
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<tbody>
<tr>
<td>Study protocol</td>
<td></td>
</tr>
<tr>
<td>Questionnaire or data collection form</td>
<td></td>
</tr>
<tr>
<td>Information sheet/s (if required)</td>
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<tr>
<td>Consent form/s (if required)</td>
<td></td>
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<tr>
<td>Any other information to be provided to participants (eg, letters of invitation, advertisements)</td>
<td></td>
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</tbody>
</table>
Appendix 5

30 August 2011

Ms Helen Garton
17 Puffett Road
Havelock North
Hawke’s Bay 4130

Dear Ms Garton -

Ethics ref: CEN/11/EXP/071 (please quote in all correspondence)
Study title: An investigation of what influences nurses not to take part or record a respiratory rate.

This expedited study was given ethical approval by the Chairperson of the Central Region Ethics Committee on 30th August 2011.

Approved Documents
- Expedited Review of Observational Studies (for the above study)
- Study protocol
- Low Risk Research Questionnaire (Part A and part B)
- Consent form
- Participant Information Sheet
- Telephone Interview Schedule

This approval is valid until 30th August 2013, provided that Annual Progress Reports are submitted (see below).

Annual Progress Reports and Final Reports
The first Annual Progress Report for this study is due on the 30th August 2012. The Annual Report Form that should be used is available at www.ethicscommittees.health.govt.nz. Please note that if you do not provide a progress report by this date, ethical approval may be withdrawn.

A Final Report is also required at the conclusion of the study. The Final Report Form is also available at www.ethicscommittees.health.govt.nz.

We wish you all the best with your study.

Please do not hesitate to contact me should you have any queries.

Yours sincerely

Laura Jayne Burlison
Administrator
Central Regional Ethics Committee
Email: central_ethicscommittee@moh.govt.nz
Appendix 6

Introductory Letter for potential Participants

Dear colleague,

My name is Helen Garton and I am Nurse Educator at Hawke’s Bay DHB working with the new graduate RNs. I have a special interest in the “deteriorating patient” and bedside assessment. This has led me to focus my Masters Degree research on nurses’ perceptions regarding respiratory rate taking and recording. I would be very interested in hearing your views on this topic and would be pleased if you would allow me to interview you via the telephone. It would take between 20-30 minutes of your time outside of work and at a time that suits you.

Your taking part in this research would greatly help, not only me, but it could inform the profession about nursing practice at the bedside. I would be very grateful to hear from you and will happily answer any questions you may have. Please contact me either by email (helen@garton.co.nz) or by telephone (06 8778037 or 0278193270).

Thank you for your time.

Yours truly,

Helen Garton