A case study exploration of patient safety culture within an Acute NHS Trust, utilising Open Systems Theory.

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Abstract

Background: The prevention of errors and adverse effects from healthcare in hospitals is a global priority. The beliefs, values, and norms of an organisation can support patient safety and influence staff behaviours.

Aim: To understand perceptions of, and influences on, patient safety culture within an Acute NHS Trust in England.

Method: A case study of one acute NHS hospital Trust with embedded units of analysis (two medical wards). Semi-structured interviews were conducted with 16 staff at different levels of the Trust. Documentary analysis included patient safety metrics and organisational safety documents.

Theoretical framework: Open Systems Theory.

Findings: There were differing perceptions at the different levels about acceptable levels of risk and the compromises needed to manage pressures. There was a lack of opportunities for interaction and dialogue to establish common values around patient safety. Micro level staff perceived that a balance had to be struck between maintaining quality of care and reporting patient safety. There was little internal or externally facing examination and interrogation of safety metrics that would convey a commitment to a positive patient safety culture.

Conclusions: A more nuanced understanding of how a system contributes to patient safety has emerged and some of the factors that act as enablers of, or barriers to, a positive patient safety culture. Staff at all levels believed that patient safety was important but patient safety culture was more about measurement of events and avoidance of specific measurable harms than a clearly articulated set of values about safety.

Recommendations: Organisations should regularly evaluate the effectiveness of patient safety feedback loops so clinical staff voices, including healthcare assistants, become part of meso/macro level decision-making regarding how safe patient throughput can be managed. Healthcare organisations should recognise the role that shift co-ordinators play in keeping patients safe at ward level by providing training for junior nurses to step into this role. Safety training at all levels is necessary to create a shared dialogue about risk, safety, reporting and learning so organisations should embrace the safety syllabus and training for NHS staff that was introduced in May 2021 and ensure staff have protected time for this training.

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Abbreviations

AvMA	Action Against Medical Accidents
AOMRC	Academy of Medical Royal Colleges
BAME/BME	Black Asian Minority Ethnic Groups
CHPD	Care Hours Per Day
CQC	Care Quality Commission
CCG's	Clinical Commissioning Groups
CQUIN	Commissioning for Quality and Innovation
DH	Department of Health
DTI	Deep Tissue Injury
DVT	Deep Vein Thrombosis
EU	European Union
HAS	Hospital Advisory Service
HRA	Health Research Authority
HRT	High Reliability Theory
ICR	Integrative Conceptual Review
IHI	Institute for Healthcare Improvements
IOM	Institute of Management
NHS	National Health Service
NICE	National Institute for Clinical Excellence
NMC	Nursing and Midwifery Council
MMAT	Mixed Methods Appraisal Tool
NPSA	National Patient Safety Agency
OST	Open Systems Theory
PCT	Primary Care Trust
PE	Pulmonary Embolism
PPC	Positive Psychological Capital
PSC	Patient Safety Culture
QIPP	Quality Innovation Productivity and Prevention
SNCT	Safer Nursing Care Tool
UTI	Urinary Tract Infection
UK	United Kingdom
VTE	Venous Thromboembolism
WHO	World Health Organization

Table of contents

List of Tables

List of Figures

Chapter 1: Introduction

Patient safety is a global phenomenon experienced across all healthcare systems (WHO, 2019; Flott *et al.*, 2017; Mauro, 2016) and recognised from the beginning of medical intervention as encapsulated by "first do no harm"[1]. This chapter contextualises the research study by first defining patient safety, patient harm and patient safety culture. The importance of patient safety culture in relation to the avoidance of patient harm is explained. Patient safety is a well-researched area but mainly focused on error avoidance, fault finding, and blame attribution so examines individuals or systems rather than system dynamics and relationships. What is missing, which this study set out to address, is a more nuanced understanding of patient safety culture (PSC). Healthcare systems are complex (Leonard and Frankel, 2010) and aspects of the system contribute to perceptions and understandings of patient safety culture and harm-avoidance behaviours. This study differs from other studies by exploring patient safety culture through the lens of Open Systems Theory (explained in Chapter 3) in which the healthcare setting is seen as a complex but open system in which the factors of people, processes, contextual and organisational demands all interact and can both contribute to, and mitigate, risks. This chapter concludes with a personal rationale for undertaking this study and an overview of the thesis structure.

1.1 Definitions

1.1.1 Patient safety

The goal of patient safety is to reduce the risk of injury or harm occurring to patients as a result of either the structure or process of delivery of care; this includes avoidance of adverse events (Riley *et al*. 2010). As the World Health Organization (WHO) (2019) identifies, "the risk of patient death occurring due to a preventable medical accident, while receiving healthcare, is estimated to be 1 in 300" and "Patient Safety is a healthcare discipline that emerged with the evolving complexity in healthcare systems

[1] Attributed to Hippocrates the Greek Philosopher from which comes the sworn Hippocratic Oath, but the original statement comes from his writings 'Of the Epidemics'

and the resulting rise of patient harm in healthcare facilities". Vincent (2010, p.31) regarded patient safety as the "*avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the process of healthcare*" whereas Hollnagel (2008, p.64) viewed it as "*freedom from unacceptable risks*" arguing that "*safety is something an organisation does rather than something an organisation has; it is a process rather than a product"*. Morey *et al*., (2021) explain "patient safety is a term used to describe the collaborative efforts of healthcare providers, systems, services and practitioners to ameliorate the risk of unnecessary harm to patients".

In 2004, the WHO launched the '*World Alliance for Patient Safety*'[2] to improve patient care. From this, an international classification for patient safety was drafted in order to consolidate and agree a set of definitions that could be utilised internationally. This would then allow, in the long term, for comparisons to be made (internationally) and for trends in patient safety to be tracked over time. Patient safety is operationally defined in this thesis as:

> *"the absence of preventable harm to a patient during the process of healthcare and reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum." (WHO, 2004)*

1.1.2 Patient harm

Healthcare-associated harm is recognised as harm arising from or associated with plans or actions taken during the provision of healthcare, rather than an underlying disease or injury (Runciman *et al.,* 2009). The NHS is expected to treat patients in a safe environment while protecting them from harm that is avoidable. Harm is defined as:

[2] World Alliance for Patient Safety is a project encompassing all aspects of patent safety involving patients, developing a patient safety taxonomy. Researching patient safety and creating solutions to reduce of harm and promote safety.

> "*unintended physical injury resulting from or contributed to, by medical care that requires additional monitoring, treatment or hospitalization or that results in death"* (De Wet and Bowie, 2011, p.117).

Four levels of harm were classified by the National Patient Safety Agency (NPSA)[3] as low, medium, high and avoidable death (NPSA, 2011). Other terms commonly used in practice to describe and record harm events are "patient safety incident", "near miss" and a "never event". These terms are used to describe any incident resulting from a healthcare-related event that is unintended, unexpected, or undesired and which could have or does cause harm to a patient (NPSA, 2011). Harm is a subset of patient safety that is measurable; patient safety emphasis is the reduction in risk of unnecessary harm.

1.1.3 Patient safety culture

Patient safety culture should be viewed as one aspect of an organisational culture (Cooper, 2000; Weaver *et al*, 2013). In the context of this study, organisations are understood as "*collectivities oriented to the pursuit of relatively specific goals. They are 'purposeful' in the sense that the activities and interactions of participants are coordinated to achieve specified goals" (Scott and Davis, 2007, p.29).* 'Culture' shapes the perceptions of staff about what is deemed as normal behaviour in the work environment (Weaver *et al.*, 2013) and, in healthcare, has potential to impact directly on staff providers and those that receive healthcare (Manley *et al.*, 2011). Patient safety culture, at an organisational level encompasses a commitment to detecting and analysing all harms to patients and making those results available within and outside the organisation to share learning on how best to improve patient safety (Riley *et al.*, 2010).

[3] NPSA government agency set up to monitor patient safety incidents within the NHS

A positive safety culture creates "*an atmosphere of mutual trust where staff members can speak up freely about safety concerns without fear of punishment or blame*" (Institute for Healthcare Improvement, 2005). Central to this is that safety is taken seriously at all levels in an organisation. Relevant characteristics in healthcare settings have been described as where individuals working within teams share values and beliefs about how best to seek to promote patient safety and are willing to make safety a priority at every patient encounter, all in pursuit of better patient outcomes (Riley *et al.*, 2010).

A common definition of safety culture utilised in literature (Sammer *et al.,* 2010; Feng *et al*., 2008; Willmott and Mould, 2017) and organisations like the Agency for Healthcare Research and Quality (AHRQ) is derived from the Advisory Committee on the Safety of Nuclear Installations and Health and Safety Commission of Great Britain (ACSNI-HSC). This definition has been adapted to the healthcare setting by adding 'patient' to 'safety culture' (Hayashi *et al*., 2020). In this thesis, Patient Safety Culture is operationally defined as:

> "*the product of individual and group values, attitudes, perceptions, competences, and patterns of behaviour that determine the commitment to, and style and proficiency of, an organisation's health and safety management.*" (ACSNI-HSC, 1993).

A positive safety culture is characterised by shared perceptions of the priority of safety and in the efficacy of preventative measures with Cooper (2000) suggesting that safety culture exists at a higher level of abstraction in comparison to safety climate.

1.1.4 Patient safety climate

Patient safety culture and 'patient safety climate' are terms often used interchangeably in reports, research and documents when referring to organisational culture but there are small differences between these

terms. Zohar (1980) coined the term ‘safety climate’ to describe the perceptions that employee share about their work environments. Over time, this has been expanded to become a set of perceived or shared attributes identifiable from the safety policies and practices imposed by organisations on their employees. Clarke (2010) reasoned that safety climate is merely an indication of safety culture at a particular time. Wiegmann *et al*. (2004) argued that safety culture constitutes more enduring characteristics of an organisation whereas safety climate is more temporary and subject to change consequent upon situational and environmental factors. As Yule (2003) identified, definitions of safety and safety culture share similar aspects with the main difference being that safety culture is characterised by:

> “*shared underlying beliefs, values and attitudes towards work and the organisation in general*” whereas safety climate is more related to “*day-to-day perceptions towards the working environment working practices, organizational policies and management.*” (Yule 2003, p.3).

In this thesis, safety climate is defined as:

> *“the surface features of safety culture” arising from the perceptions and attitudes at a given point in time and thus a measurable component of safety culture*.” (Halligan and Zecevic, 2011, p.340).

Patient safety climate is often viewed as a snapshot of staff perceptions obtained through staff surveys (Weaver *et al.*, 2013) making it easier to measure than safety culture in the NHS because it is concerned with staff perceptions and how safety is managed within an organisation. Arguably, this reflects Yule’s (2003) position that safety culture and safety climate operate on different levels reflecting their 1980s origins in organisational psychology, organisational behaviour, and management theories.

Mandatory annual surveying of all NHS staff in England commenced in 2003. Until 2019, the survey covered twelve dimensions from which to inform both employers and national stakeholders about staff experiences. Changes were made for 2020 reflecting the pandemic (NHS England 2020a). Only one dimension relates to safety culture, but other dimensions are relevant to safety climate. The survey conducted on the 1st of September 2018 was circulated to over 1.1 million NHS employees, with a response rate of 46% (n=497,117). The 2018 survey identified an overall score of 6.7, up from 6.6 (on a scale of 0-10, with 10 representing the best score) for 2017, in relation to measures of organisational culture. It identified a growth of nearly 3% of staff reporting incidents/near-misses up from 25% in 2017 to 27.8% in 2018 with improvements having been made in the reporting namely 68.6% in 2017 to 70.4%. The reporting of errors and incidents/near-misses increased from 57.9% in 2017 to 59.9% in 2018. However, another key dimension, quality of care, saw a decrease from 82.7% in 2017 to 80.7% in 2018 (NHS, 2018). There were also increases in staff experiencing and reporting harassment and bullying by managers and colleagues. Employee health and wellbeing showed a nominal decline in staff health from a score of 6 in 2017 to 5.9 in 2018.

In the context of this study, ‘patient safety climate’ incorporates measurable components of safety culture such as: NHS staff surveys, NHS safety metrics and Care Quality Commission (CQC) data. Arguably, these allow for the perceptions of safety climate in organisations to be compared, and the influence of any interventions to be monitored over time but fail to provide the nuances of patient safety culture that this thesis aims to explore through a case study approach.

1.1.5 Organisational culture and patient safety

1.1.5.1 Shaping organisational culture

Accepted behavioural norms, ‘the way we do things around here’ (Clarke, 2010, p.257) form the culture of an organisation. Safety culture reflects how patient safety is viewed and implemented by staff and the

organisational processes and structures that support it (Weaver *et al*, 2013). Organisational culture was a fundamental factor in the Mid Staffordshire incidents of patient harm where the senior staff focused on meeting financial targets rather than on what was occurring at the micro (ward) level regarding direct patient care (Francis, 2013). Culture is associated with attitudes, values, beliefs, and norms of behaviour which comprise the complexity of elements that influence how things are understood, done, and valued within organisations (Schein, 2004). The shaping of organisational culture is an important aspect of executive-level nurses (Francis, 2013). An organisational culture that focuses on promoting patient safety is fundamental to identifying potential deficits in patient safety and improving safety as opposed to one that focuses activity on fiscal savings (Francis, 2013). The National Patient Safety Organisation (2004) identified seven steps that organisations should take to improve patient safety (Text box 1).

Text box 1: Steps to improve NHS organisational safety culture

1. Build a safety culture
2. Lead and support your staff
3. Integrate your risk management activity
4. Promote reporting
5. Involve and communicate with patients and the public
6. Learn and share safety lessons
7. Implement solutions to prevent harm

Source: National Patient Safety Agency (NPSA). 2004. *Seven Steps to Patient Safety*. London: NPSA, p.7

When ‘culture’ shapes perceptions of what is acceptable, praise or punishment (delivered informally by fellow colleagues or formally by managers or organisational leaders) may result (Weaver *et al.*, 2013). The assumption has been that better safety culture in hospitals is associated with fewer adverse events however, the evidence for this is weak with only some measurements of incidents (medicine errors and pressure ulcers)

showing correlations (Singer *et al*. 2009). A study of patient falls in 37 nursing units in nine US hospitals did find a significant relationship between safety culture and the structure of care delivery (Brown *et al.*, 2013) but given the political, financial and organisational differences in US healthcare systems, their study has limited transferability to the UK context. However, as calls for a new NHS structure for a post-pandemic world emerge (Alderwick *et al*., 2021) the likelihood of this link should not be ignored.

1.1.5.2 Healthcare professional culture

The WHO (2021, p.19) identifies that a “culture of safety has to percolate in the attitudes, beliefs, values, skills and practices of health worker and managers.” Implicit within this is a sense of “sociological citizenship” (Corbett *et al*., 2011) which shapes how individuals frame problems that arise out of the tasks they perform and conceptualise solutions, with effective performance contributing to overall organisational performance. Consequently, organisations need to create conditions that encourage individual diligence and that doing so helps collectively to reduce the policy-practice gap that exists in healthcare and the reliance on top-down initiatives to improve systems of care (Corbett *et al*., 2011). Arguably, Seshia *et al*., (2017, p.194) would concur since they maintain that healthcare professionals are “the last line of (cognitive-affective) defence in the healthcare system.”

Healthcare professional culture as well as organisational culture shapes perceptions and behaviours regarding patient safety. Nurses comprise the largest professional group working within healthcare; patient safety is an essential element in the Nursing and Midwifery (NMC) *The Code* (NMC, 2018). Registrants must work “within the limits of your competence, exercising your professional duty of candour and raising concerns immediately whenever you come across situations that put patients or public safety at risk" and “be open and candid with all service users about all aspects of care and treatment, including when mistakes or harm have taken place” (NMC, 2018: Preserve Safety: No 13). The Code requires

practitioners to “be aware of and reduce as far as possible, any potential for harm associated with your practice” (NMC, 2018, p.17).

1.1.5.3 A ‘just’ and ‘patient-centred’ culture

Developing a ‘Just’ organisational culture is a recognised way of improving safety culture in organisations through learning to address the balance between a punitive culture (grounded in society’s desire to blame someone when things go wrong, which punishes all deviations from set practices) and a blame-free culture in which all behavioural choices are forgiven (Forster *et al*., 2019). Blaming individuals creates secondary victims of patient harms; staff involved can experience “shock, denial, shame, anxiety, remorse, fear, anger, isolation, sleep disturbances, and depression, hyper-vigilance and obsessively worry” (White and Delacroix, 2020). ‘Just Culture’ is grounded in learning culture so Forster *et al.,* (2019) argue that behaviour arising from human error should be met with compassion by organisations (as the action was inadvertent) allowing learning to occur. In contrast, ‘risk’ or ‘reckless’ behaviours need different strategies (Forster *et al*., 2019). Risk behaviour requires coaching of that individual and learning must ensure that others do not have similar mistaken perceptions of risk whereas reckless behaviour needs management to respond by disciplining, so others learn that knowingly putting patients in danger is unacceptable (Forster *et al*., 2019).

However, frequently organisations respond inconsistently to situations resulting in an “outcome severity bias” so when good outcomes result despite risky/reckless behaviours, those behaviours can become normalised until some “one-off” event leads to over-reaction from management (Forster *et al.,* 2019, p.267). A key function of nurse leaders is to ensure balanced responses, and Just Culture, expects them to create a culture of psychological safety where staff feel able to raise issues, learn from errors and are involved in decision-making (Jeffs *et al*., 2018). Also, advocating for colleagues within clinical areas is important (Reid and Dennison, 2011).

1.1.5.4 Influence of the patient/service user voice

The patient/service user voice will be a growing influence upon executive thinking (WHO, 2021). Most studies on patient safety use data generated by healthcare staff with alternative valuable insights being lost so Reader and Gillespie (2020) propose that non-employee stakeholders should be included in assessments of safety performance including safety climate surveys and if the experience or observe unsafe behaviours. In contrast, Heavey *et al*., (2019) argue that patient involvement in care in general is problematic since the patient is a novice in the clinical setting and their unequal power dynamic with staff may discourage them from voicing safety concerns. Barriers to accepting or enacting co-responsibility for their own safety include existing physical, cognitive or lack of expertise into their own conditions (Heavey *et al*., 2019). However, Mahjoub *et al*., (2018) argue that better information about treatments would encourage patients to speak up. Patients' narratives can provide valuable insight into care and events; currently patient experience is captured in annual NHS surveys with another mechanism for raising safety concerns by patient or families is through complaints (Reader and Gillespie, 2020).

1.2 Patient safety incidents and patient harm

1.2.1 Patient harm

In *Limits to Medicine*, Ivan Illich, an historian, and philosopher, raised awareness of iatrogenesis and the direct harm caused by medicine (Illich, 1975). In 2018, it was estimated that iatrogenesis, related to adverse, and often avoidable, medication reactions, was the fifth leading cause of death in the world (Peer and Shabir, 2018). The 1999 report: *To Err is Human: Building a Safer Health System'* (Kohn *et al.,* 1999), resulted in the issue of medical error becoming widely acknowledged within the healthcare arena. Statistics within the report were based on two large-scale American-based studies which identified that medical error was responsible for more deaths than breast cancer indicating that between 44,000 and 98,000 deaths were attributable to medical error at that time (Kohn *et al.,* 1999).

Errors have been a consistent feature of medicine and healthcare delivery, and frequently seen as a consequence of human or process failure. The Kohn *et al.* (1999) report was pivotal in acknowledging the complexity of issues around harm and error in healthcare settings. As Vincent (2010) identified, equating preventing error with ensuring patient safety seems an innocent enough assumption but is limiting. By 2012, the Institute of Medicine Committee's approach was to emphasize that 'error' which resulted in patient harm was not necessarily a property of healthcare professionals' competence, good intentions, hard work, or lack thereof. Linking the understanding of errors and how they occur is fundamental to improving patient safety, but it is not only errors that cause patient harm, some harms derive from systems failures or the challenges of weighing risks of harms against benefits in relation to treatment modalities or drug side-effects (Waterson, 2009). The term 'patient safety incident' has been adopted over 'patient errors' as it in embraces risks that occur as result of other causes not just errors.

Patient safety incident is defined in this thesis:

> "*As any unplanned or unintended event or circumstance which could have resulted or did result in unnecessary harm to a patient" (WHO, 2009, p.15)*

This study is important because it is estimated that 10% of all patients in the UK are harmed during their healthcare experience and approximately 50% of these incidents are avoidable (WHO, 2019; DH, 2012). There is a 1:300 chance of being harmed during healthcare with patient harms (pre-Covid-19) being the 14th leading cause of global disease burden comparable to tuberculosis (WHO, 2017). It is speculated that, globally, 42.7 million adverse events occur in about 421 million hospitalisations (WHO, 2017). An estimated 15% of total hospital activity and expenditure in developed countries is a direct result of adverse events (WHO, 2017). The estimation of harm in studies undertaken during the early 1980s ranged from 4%-16% in the USA, 10% in Australia, and 9% in Denmark by

1998. In 2000, the Hospital for Europe Working Party on Quality Care estimated that every 10th patient in hospital suffered from preventable harm and adverse effects related to the care they received (WHO, 2004).

Patient harm can range from transient, reversible symptoms to permanent life-changing effects or loss of life (NHS National Reporting and Learning System, 2019). The emotional, physical, and financial impact on patients, families and healthcare professionals can be devastating (Southwick *et al.,* 2015). In addition, Seys *et al.,* (2013) identifies that patient harm affects healthcare professionals by causing them emotional distress and impacting on their behaviours.

Patient safety is associated with care quality but is an important subset and the terms are not synonymous (NPSA, 2000). The focus of this study is patient safety however it is important to acknowledge the 2009 *NHS Constitution for England* published following Lord Darzi's report *High-quality Care for All* (DH, 2009). Updated in 2015, the Constitution states that patients have the right to receive a professional standard of care by appropriately experienced and qualified staff that meets required, and monitored, levels of safety; patients have rights to be informed of safety incidents related to their care that have/could cause harm; staff should raise safety concerns and comply with health and safety requirements (DH, 2015).

1.2.2 Inquiries into patient harm within the NHS

In the United Kingdom (UK) there have been over 100 public enquiries into healthcare failures since the foundation of the National Health Service (NHS) in 1948. Each resulted in initiatives aimed at avoiding future failures and making care safer. Some cases and resultant public enquiries have been instrumental in shaping policy and legislation within the NHS. An early high-profile case was Ely Hospital, an institution for people with learning disabilities which came to national attention via the *News of the World* in 1967 for inadequate care, mistreatment, overcrowding and

cruelty to residents (Drakeford, 2013). The resultant public inquiry findings were addressed in a Department of Health (DH) White Paper (DH, 1971: *Better Services for the Mentally Handicapped*) and legislative change in The Chronically Sick and Disabled Act 1970.

A public enquiry chaired by Sir Ian Kennedy followed twenty-nine baby deaths at a cardiac unit in Bristol between 1984 to 1995 (DH, 2001). His report was pivotal in reforming attitudes to professional competence and how areas and incidents are monitored and reported to ensure lessons are learnt to avoid future harm. Failures in culture at Maidstone and Tunbridge Wells NHS Trust leading to inadequate standards of care were seen as key to the outbreak of a hospital-acquired infection causing approximately 60 deaths (Healthcare Commission, 2007).

Gross institutional failings at Mid Staffordshire NHS Foundation Trust from 2005 to 2008 were highlighted in the Francis Reports where poor-quality care and patient safety failures resulted in mortality rates 25% greater than the average for a similar institution (Francis, 2010, 2013). Despite the rise in death rates and abundant evidence of poor-quality care, the organisation went unchallenged by regulatory agencies (Francis, 2013). The Francis inquiry (2013) highlighted a number of organisational risk factors including a lack of leadership, poor staffing levels, lack of staff training, and a culture within the organisation that was aimed at reaching financial targets at the expense of patient safety and care delivery. The drive by the then Trust Board to a) reach national access targets, b) achieve financial balance and c) seek Foundation status was at the cost of delivering acceptable standards of care (Francis, 2013).

The first Francis Report (2010) highlighted the need for patients to be first priority in preference to targets, and that providing safety and effective care is the primary responsibility of all Trusts. The second Report, (Francis, 2013, p.64) identified the Department of Health as having an “important leadership role to play in promoting the change of culture required throughout the healthcare system”. It used the word ‘culture’ 486

times, emphasising throughout, the need for the NHS to adopt a culture of learning, safety and transparency.

The Berwick Report (2013) identified how to address safety culture in the NHS, acknowledged that patient safety issues existed across the whole of the NHS, and identified actions that must be taken to ensure that lessons were learnt from the events at Mid Staffordshire Foundation NHS Trust (Berwick, 2013). Along with the 290 recommendations made by the Francis report, the Berwick report (written in response to the Francis report) placed a lifelong learning culture high on the agenda in relation to patient safety and care quality improvement, with a focus on customised training for the entire workforce (Berwick, 2013). The Berwick report indicates that for the NHS to advance patient safety, it needs to become more of a learning organisation (Senge,1995), something previously identified by Lord Darzi (DH, 2008) and ensuring patient safety is a pivotal component of quality care (Berwick, 2013).

Yet issues of safety continue to be raised such as: avoidable deaths of mothers and babies at University Hospitals of Morecambe Bay NHS Trust (DH, 2015); preventable baby deaths at East Kent Hospitals and, in 2019, the Ockenden inquiry started investigating mother and baby deaths at Shrewsbury and Telford NHS Hospital Trust (Dyer and Scagnoli, 2020) with a criminal investigation announced on the 30th of June 2020 (West Mercia Police, 2020).

Later reports highlight the impact of organisational culture within the NHS, leading to system failures that result in poor care delivery, influenced by inadequate staffing levels, not working with open transparent systems, failure at Board level to act on concerns raised at ward levels, and ignoring opportunities to reduce avoidable harm. What also emerges from the reports is that within the same organisation, there are wards or units that are performing well whilst others pose a risk of patient harm occurring. Capturing a sense of how patient safety culture is viewed on wards and

what those responsible for nurse-led care perceive as influencing a positive safety culture could provide valuable insights.

1.3 Strategic responses to shape patient safety culture and prevent patient harm

Global and national strategies have been developed in response to the recognition of factors related to patient safety culture and theoretical explanations of why patient harm occurs.

1.3.1 World Health Organization (WHO)

The WHO recognises that although substantial differences exist between countries, it should exhibit proactive leadership for harm prevention and has restructured its coding of healthcare-related injuries for ICD-11 (Southern *et al*., 2016). “Better data and better information” are “crucial” for patient safety (Ghali, 2013, p.264).

The WHO passed its first patient safety resolution, Quality of care: patient safety (WHA55.18) in 2002 (WHO, 2002) leading to the establishment of the World Alliance for Patient Safety in 2004, renamed WHO’s Patient Safety Programme in 2009. The Secretariat has generated educational material, tools and global guidelines for several healthcare procedures (e.g., hand hygiene, safe surgery), set research priorities and provided funding. Over 182 countries and 23,500 healthcare facilities use its guidelines for hand hygiene (WHO, 2020); the surgical safety checklist has been adopted in 132 countries worldwide (Gillespie *et al.,* 2018).

In a drive to provide global leadership for patient safety in line with the fundamental aim of the World Alliance for Patient Safety Policy and practices in member states, the WHO introduced the concept of Global ‘Patient Safety Challenges’. The first global challenge ‘Clean Care is Safer Care’, launched in 2005, related to hand hygiene. This was followed by ‘Safe Surgery Saves Lives’ (2008), ‘Medication Without Harm challenge’ (2017) and consultation on the Global Safety Patient Safety Action Plan

2021-2030 was launched in January 2021 (WHO, 2021). The global challenges are aimed at supporting countries to prioritise action-taking in key areas with subsequent international evaluations of their effectiveness (WHO, 2006; WHO, 2009; WHO, 2017, WHO, 2021).

The WHO (2021, p.14) recognises that the "crisis" of avoidable patient harm will remain once the COVID-19 pandemic is over so the "patient safety lessons from both pandemic failures and pandemic transformations" need capturing. The WHO's (2021) proposed strategic objectives for 2021-2030 are:

1. Make zero avoidable harm to patients a state of mind and a rule of engagement in the planning and delivery of health care everywhere.
2. Build high-reliability heath care systems and health organizations that protect patients daily from harm
3. Assure the safety of every clinical practice.
4. Engage and empower patients and families to help and support the journey to safer health care.
5. Inspire, educate, skill and protect health workers to contribute to the design and delivery of safe care systems
6. Ensure a constant flow of information and knowledge to drive the mitigation of risk, a reduction in levels of avoidable harm and improvement in safety of care.
7. Develop and sustain multisectoral and multinational synergy, solidarity, and partnership to improve patient safety and quality of care.

World Health Organisation, 2021

Some aspects of the 2021 initiatives, such as engaging patients and families in safety issues, lack a robust evidence base (Ocloo *et al.,* 2021). Delivering this ambitious agenda will be challenging, particularly given the current pandemic and its associated economic burden on countries (Jin *et al.,* 2021).

1.3.2 UK National Patient Safety Initiatives

1.3.2.1 NHS Patient Safety Strategy 2019

The NHS *Patient Safety Strategy* (published in July 2019 after data collection in this study) sets a vision for the NHS to continuously improve patient safety by building on previous strategy (NHS England, 2019). This strategy sits alongside the NHS Long term Plan (LTP) and its implementation framework for the next 5-10 years (NHS England, 2019) and builds on two foundations: patient safety culture and patient safety system. The strategy has three main aims: 1) improve understanding of safety by drawing insight from multiple sources of patient safety information; 2) equip patients, staff and partners with the skills and opportunities to improve patient safety throughout the whole system; 3) design and support programmes that deliver effective and sustainable change in the most important areas. Key features include: 1) a safety syllabus and training for all staff (introduced in January 2020); 2) a requirement for all NHS organisations to identify a specialist to lead on patient safety by September 2020; 3) a new digital incident management system Patient Safety Incident Management System (PSIMS) (due to commence in early 2021); 4) a clear strategy for involvement of patients on safety and a national safety improvement programme with a framework due for publication in 2021 (NHS England, 2019, NHS England, 2020b).

To achieve the Strategy's future 'Patient Safety Vision', a draft *Framework for involving patients in patient safety*, both their own and throughout the whole system of healthcare, was published in October 2020 and places emphasis on patients asking questions, raising concerns, or reporting safety incidents and having access to information if problems occur (NHS England and NHS Improvement, 2020). Potentially, if patients fail to ask questions or report worries, they could be considered partially to blame for harms that befall them (Farrell and Devaney, 2016). The draft Framework also covers the newly proposed role of Patient Safety Partners (PSPs) in NHS organisations and their participation in safety and quality committees

and involvement in patient safety improvement projects and initial training for patients to take on these roles.

A national Patient Safety Alerts system was introduced in November 2019 with a new Patient Safety Incident Reponses Framework (PSIRF) which will replace the current Serious Incident Framework announced in March 2020 (England NHS, 2019). Finally, the Strategy makes provision for creating a new role of medical examiner who will scrutinise deaths.
The existing mandatory reporting of harms, measures of culture, process and outcomes will continue but the Strategy challenges organisations to look at five dimensions (past harm, reliability, integration and learning, anticipation and preparedness and sensitivity to operations) to gain a more-rounded and accurate view of safety which will, theoretically, support efforts to identify areas that present opportunities for safety improvement thus moving away from just monitoring and measuring harms. Therefore, culture metrics will be used to understand how safe care is and encourage organisational leaders to promote staff psychological safety, 'just culture' and 'learning culture'. It places emphasis on creating a "kinder" culture in how staff behave towards each other and reducing 'blame culture'. The Strategy aims to "embed the principles of a safety culture within and across local system organisations" (NHS England, 2019, p.11) giving tacit recognition that NHS Trusts are not discrete organisations (as often healthcare provider organisations are in other countries: Wendt *et al.,* 2009) but interlinked within a wider, more porous, open system.

The NMC (2020) responded to the proposed NHS Patient Safety Strategy and the Patient Safety Partner Framework and identified the challenges of involving patients in their own safety, although they supported the view that organisations should actively encourage patients to raise concerns rather than wait to be invited to do so. The NMC, regulator of the largest group of healthcare professionals, felt the overall strategy and the Framework needed to recognise the impact of 'staff workloads and priorities' and argued that it did not recognise workforce considerations are a vital factor impacting on staff well-being and the amount of time staff can

spend with patients. Successful workforce planning is therefore a key component in improving the safety of staff and service users. The NMC also highlighted the need to move away from a culture of blame to promotion of a just and learning culture that must embrace equality and diversity as key components of person-centred care (NMC, 2020). The NMC (2020) also called for the introduction of a Patient Safety Commissioner; this echoes the Cumberlege Report (2020) report that recommends that the Patient Safety Commissioner should sit outside the healthcare system, report directly to parliament, and be led by a set of principles identified by patient groups that would provide the remit for the Commissioner's role.

The Cumberlege Report (2020) examined the NHS England response to reports about harmful side-effects of pregnancy-related medicines and medical implants (particularly pelvic mesh implants) including how the system responded to patient concerns and how the patient voice could be strengthened, and future responses made more robust. The Report highlighted how professional culture and system culture led to denial of patients' concerns and noted that litigation, which is blame-based and focusses on the actions of individuals, inhibits disclosure. Additionally, Cumberlege (2020) suggested that the medicines regulators' culture should shift from industry-only focus to include patients' perspectives within their processes. Moving forward, they suggest that more multi-disciplinary team meetings should be involved in reaching balanced decisions in relation to benefits versus risks when considering using implanted medical devices in patients (Cumberlege, 2020). In response to the Cumberlege Report, the Professional Standards Authority, endorsed recommendations that they work with other professional regulators to action this review in terms of patient safety concerns (professional standards.org.uk accessed 21/01/21).

The Action Against Medical Accidents (AvMA) (2020) group response to the draft *Framework for involving patients in patient safety* identified areas that it considered had been addressed inadequately including access by

patients to independent advice and or advocacy following safety incidents and need for additional funding as currently advice is only available in cases of complaints. AvMA also identified the need to support patients with learning disabilities with advocates. In line with the NMC, the AvMA reiterated that professionals should also be able to raise concerns without fear and responsibility for expressing worries should not sit with patients alone who may lack sufficient knowledge to be able to identify risks. Likewise, in relation to a 'just culture', AvMA perceived this to need a top-to-bottom approach in the NHS, not just related to NHS staff but also patients and families and advised this should apply to policymaking and be adopted as a 'national vision' (AvMA, 2020). Thus, patient safety culture is beginning to be perceived not just as something that exists within organisations and influenced by professional culture but is impacted by patients, families, and the communities within which each organisation sits and can be shaped by national policy as well as organisational culture.

1.3.2.2 Proposed National Syllabus for Patient Safety

The NHS England *Patient Safety Strategy* (s.2.3.2.1) proposed the introduction of a new National Patient Safety syllabus developed by the Academy of Medical Royal Colleges (AOMRC) and the University of Warwick as the basis for education and training throughout the NHS (AOMRC, 2020). This will be a multi-professional syllabus, underpinned by a systems approach incorporating both systems and human factors, aimed at clinical and non-clinical staff. The proposed content has five domains: systems approach to patient safety; learning from incidents; human factors and safety management; creating safe systems; being sure about safety (AOMRC, 2020). Safety culture is a key theme with safety culture education, monitoring and measurement tools included, incident reporting and investigation, critical proactive systems to prevent harm and reflecting best practice, current and future national safety initiatives and key regulations and campaigns (AOMRC, 2020). Whilst potentially a valuable initiative, the heavy focus upon systems shows the syllabus designers clearly view each healthcare provider organisation as a bounded and discrete entity. There is no mention of drawing upon service users or the

role of patients, families, or communities in safe care. Also, the considerable emphasis upon task, measuring, reporting, and responding to incidents fails to recognise the limitations of metrics, lag indicators and surveys. The importance of allowing worries (from patients, staff, or the local community) to be voiced (Reiman and Pietikäinen, 2014; AvMA, 2020; NMC, 2020) is ignored.

1.3.3 The development of healthcare safety monitoring in England

1.3.3.1 External scrutiny

The initial idea of systematically monitoring patient outcomes in terms of morbidity and mortality rates was presented in 1904 by Ernest Codman (Ball, 2019). The 1970s saw the introduction of the Hospital Advisory Service (HAS), a forerunner to the current inspection and regulation arrangements, the Care Quality Commission (CQC). A notable aspect of *To Err is Human: Building a Safer Health System* (Kohn *et al.,* 1999) was that it refrained from solely attributing all causes of errors to incompetent practitioners. A call arose for a National Centre for Patient Safety (NPSA) within the Agency for Healthcare Research and Quality in the UK. Its central aim was to develop new tools and patient care systems that make it easier to do things right and harder to do things wrong; a sentiment that still resonates with practitioners (NPSA, 2014). NPSA recognised that it could learn about safety from other industries and how to build a culture of safety.

The seminal report, *An Organisation with a Memory* (DH, 2000) presented, for the first time, annual figures for reported harm, including deaths, serious injuries, adverse reactions to drugs and hospital acquired infections. It highlighted that the NHS's approach to learning from these incidents was old-fashioned so four key areas were identified as 'must do' to improve patient safety:

- Unified reporting and analysis systems.

- A more open culture where errors or service failures are reported and discussed.
- Mechanisms for ensuring lessons learnt are identified and put in place.
- An appreciation of the value of a system approach in preventing, analysing, and learning from errors.

In line with the need for a more open culture, in 2014, a Statutory Duty of Candour was introduced which placed a responsibility onto all healthcare staff to be open and honest in reporting error (DH, 2014).

The NHS in England now has over twenty regulatory bodies involved (Sujan *et al.,* 2020). As part of the unified reporting, analysis and implementing of mechanisms to address problems, independent regulation and inspection of all new and existing healthcare facilities is performed by the Care Quality Commission (CQC), incorporated in 2009 as a non-departmental public body. It sets safety standards, rates organisations, and takes action when services fail to meet standards. Following inspections, each provider of health and social care receives a report which is also publicly accessible. The CQC reports provide a sense of an organisation's safety climate and culture taking into consideration dimensions of leadership, teamwork, communication and safety systems and how safe, caring, effective, responsive and well-led they are. Local media reporting of CQC reports hold potential to shape a hospital's reputation and affect local population confidence in service provision.

The CQC can terminate services where they require improvement or fall below CQC standards. The CQC provides an annual assessment of health and social care in England identifying trends over time. The 2018/2019 *State of Care* report identified slight improvements overall in the quality of care with 65% of acute NHS services being rated as good in 2019 (in comparison to 60% in 2018) with a further 25% being rated as requiring improvement and 2% rated as inadequate. The report highlighted several challenging areas like increasing bed occupancy rates and missing targets

for 4-hour waits in emergency care. The areas of medicine and surgery were rated lower than other core services and the challenges of staff recruitment/retention and finances were noted (CQC, 2019). The 2020 CQC report considered the challenges of the current coronavirus pandemic and reported that “health and care staff across all roles and services showed resilience under unprecedented pressures and adapted quickly to work in different ways to keep people safe” (CQC, 2020).
As part of the 2019 NHS England Patient Safety Strategy (s. 1.3.2.1 above) a new digital system for frontline staff will replace existing systems with one new data portal allowing serious incidents to be recorded and investigated, mortality reviewed, and data for national surveillance for new or under-recognised risks to be inputted. A new taxonomy (presumably the WHO version) will be employed to record physical and psychological harm separately. Allegedly, this new system will create more user-friendly reports to help organisations learn. Given difficulties experienced with Covid-19 ‘Track and Trace’ (Wise, 2020), the success of widespread government IT systems is questionable.

1.3.3.2 External leverage and safety monitoring

The Quality, Innovation, Productivity and Prevention programme (QIPP) is an ‘across the board’ policy agenda implemented locally by the National Institute for Health and Care Excellence[4]. NHS Evidence and The Information Centre for Healthcare and Social sciences[5] have published associated guidelines for providers and commissioners of healthcare services with the overall aim being better care at reduced cost (DH, 2012). The NHS QIPP toolkits[6] enable the national programme to be developed and implemented locally. One of the national QIPP workstreams aimed at improving health outcomes and quality of care, thus reducing costs, identified four commonly occurring harms:

[4] NICE is an executive non-departmental public body of the Department of Health in the UK that appraises the effectiveness of treatments and publishes guidelines
[5] The Health and Social Care Information Centre is an executive non-departmental public body responsible for collecting analysing national health and social care data
[6] QIPP toolkits designed to cover a range of long-term conditions and assist commissioners with planning

I. Pressure ulcers
II. Falls
III. Urinary tract infections in patients with catheters
IV. Venous thromboembolism.

In 2013-2014, the transfer of commissioning from Primary Healthcare Trusts (PCTs) to newly formed Clinical Commissioning Groups (CCGs) allowed Commissioners to provide financial levers to organisations. The Commissioning for Quality and Innovation (CQUIN) framework (first introduced in 2009-2010) supports the creation of new or improved patterns of care and service quality improvements by providing additional monies when targets related to achieving national or local goals are reached. In 2013, NHS London had 1,000 frontline staff test innovative ways of measuring and improving harm in a pilot programme called "Safety Express" which led to the formation of the NHS Safety Thermometer (DH, 2013), a tool measuring and recording the four harms identified above as they are considered preventable through appropriate patient care (Madsen, 2014). In 2012/13, under CQUIN, NHS (England) incentivised the use of the NHS Safety Thermometer to all providers of NHS care to achieve certain quality goals; Trusts who could provide monthly data of all eligible patients could earn additional payments (Power *et al.,* 2012; CQUIN, 2014; Rostami *et al.*, 2017). Incentives are "mechanisms which motivate behaviour" (Sanderson, 2016, p.18).

The NHS Safety Thermometer (DH, 2012) is designed to be used by frontline healthcare professionals on a monthly basis, with the aim of using a six to eight-month period of data collection, creating baseline measures against which local improvements goals can be set. It enables calculation of two harm free indicators:

- HCF1 - The proportion of patients without any documented evidence of the four indicators.
- HCF2 - The proportion of patients with any evidence of the four indicators within 72 hours of admission.

Data includes regional and national data being plotted to show the number of harm incidences or harm-free care per one thousand patients, in the form of a funnel plot diagram (DH, 2012). As a tool, it does not differentiate between avoidable or unavoidable harm, it is merely a snapshot allowing detection of changes over time and enabling one organisation's data to be compared with other (similar) NHS organisations. This arguably provides external input regarding reputation and organisational ranking supposedly, as Reiman and Pietikäinen (2012) suggest, motivating desire to improve. A major weakness of this and similar tools is that they are 'lag indicator' tools i.e., measuring outcomes of activities that have already occurred (Reiman and Pietikäinen, 2012) rather than capturing more useful lead indicators that precede harm. As Reiman and Pietikäinen (2012, p1999) note, safety needs both "a continuous focus on lagging indicators of past deficiencies [and] leading indicators of current technical, organizational and human conditions and leading indicators of technical, organizational and human processes that drive safety forward".

Additionally, the expectation that the Safety Thermometer would be used as a measurement for blame-free improvement was dominated from the outset by an existing logic of institutional accountability that strongly influenced perceptions of frontline staff regarding its use in clinical practice (Armstrong *et al.,* 2018). The specific features of its implementation including public reporting and financial incentives resulted in staff seeing it as a template for performance management and blame attribution rather than the supportive and neutral measurement tool originally envisaged (Armstrong *et al.,* 2018).

The financial gain from using the Safety Thermometer should be positioned alongside opportunities for learning, education and improvements that accrue, according to Rostami *et al.*, (2017), and can underpin action for change on the premise that when alerted to harm, healthcare professionals will seek to scrutinise underlying systems of care thereby driving changes. However, the reactive nature of such instruments is of little comfort to patients who have been harmed and proactive risk

reduction is preferrable (Sujan, *et al.,* 2020). Sanderson's (2016) doctoral case study employed diabetes as a tracer for understanding how incentives influenced behaviour in a single NHS Trust that was both in competition with other Trusts and expected to coordinate with those same Trusts. Sanderson (2016, p.234) found that the financial position of the local economy had more influence on whether the Trust would be commissioned to provide services locally than government-led incentives and that competition between provider organisations (Trusts) reduced the "sharing of sensitive information necessary to improve services". This suggests that incentives might inadvertently help create conditions where patient harm occurs.

1.3.3.3 External fiscal pressures on NHS organisations

Increased demand for healthcare does not necessarily result in increased resources; a decade of slower growth in funding for the Department of Health and Social Care after the 2008 economic crash led to a rise of 1.5% each year in comparison to a 3.7% average rise prior to austerity. The year 2016-2017 saw a growth in the number of Trusts ending the year in deficit financially (King's Fund, 2019). The current pandemic will further impact government finances.

As budgets are finite, the NHS has explored ways of influencing Trusts' productivity and efficiency in improving outcomes and reducing preventable harms which, apart from the harm they cause to patients, act as a "stressor" on hospitals by stretching their capacity to cope (Murray, 2013, p.19). The Quality, Innovation, Productivity and Prevention (QIPP) was a large-scale programme developed by the Department of Health to drive forward quality improvements in the NHS while at the same time making £20 billion of efficiency savings by 2014-2015. Murray (2013) showed that government oversight can be effective through her doctoral case study using infection prevention and control as a 'tracer' for exploring how resilient, or adaptive, one healthcare organisation was. She identified that after 2010, the government moved to "loose/tight" controls with greater control of Trusts that were performing poorly and that within her

host Trust, macro level participants reported that those required adjustments to rising infection rates “increased visibility at meso level” (p.109) with strategic interventions shaping the “self-surveillance” of individual clinicians (Murray, 2013, p.112).

1.4 Overview of the UK National Health Service

The term, NHS, is an umbrella term used to describe the variety of health services across the four countries, England, Wales, Northern Ireland and Scotland, within the United Kingdom (UK). In 2016, England was organised into 44 divisions of sustainability and transformation, ranging in population from 300,000 to three million (NHS, 2020). In 2017, NHS England consisted of 207 clinical commissioning groups (CCGs) and 135 acute non-specialist Trusts (this included 84 Foundation trusts and a further 17 acute specialist Trusts of which 16 were Foundation Trusts (NHS, 2017). Clinical Commissioning Groups were established in the Health and Social Care Act of 2012 and are groups of general practices, which come together in each geographic area to commission services, including acute and mental healthcare, for their patients, and the general population; this accounts for over sixty percent of the NHS budget. NHS England currently comprises seven regions: East of England, London, Midlands, Northeast and Yorkshire, North West, South East, and South West (NHS, 2020). Further legislative change to introduce integrated health and social care systems was proposed in February 2021 (Department of Health and Social Care, 2021).

Organisational structures link to organisational cultures. Sell (2016) argues that within all sociological theories, a minimum (i.e., individual) unit (micro) and a maximum unit (macro) are recognised. These can be framed in a number of different contexts including healthcare, but variations appear. An organisation’s culture is often viewed by employees as what the organisation’s primary purpose is and affects how different types of activities are ranked in importance resulting in a deeply ingrained set of

ideas that serves as a framework for all actions and experiences of a workplace (Sell, 2016).

Healthcare organisations are characterised by “complex layering of both the system and the multiple levels of professionalized autonomous practice” (Best, *et al*., 2012, p.433). In complex systems the different layers and levels of components, that affect patient safety, cannot be made fully aware of their influences on each other or the wider system, nor on how local relationships work dynamically to keep the system functioning. Component parts can respond locally, when clear information is presented to them, yet corresponding interactions along with both past and present history can all work to impact on a systems behaviour (Dekker *et al.,* 2011).

One framing of organisational culture as applied to the NHS (Boateng, 2013) sees those at micro level (ward) influenced broadly by macro level (Department of Health, and now Department of Health and Social Care) whose decisions (often budgetary) influence the meso level’s (individual Trusts) specific decisions affecting wards. Another alternative framing (drawing on Goffman,1986) is where the macro level is understood as national policy, meso level is national programme and micro is region of the country (Caldwell and Mays, 2012). In some accounts, the macro level is interpreted as super-national or as international trends (Mohan, 1996). In reality, the Department of Health and Social Care and wider NHS influences, such as those of Public Health England or Health Education England or the WHO, are interpreted and applied by individual NHS Trusts who operate as quasi-autonomous bodies.

The dominant view of the NHS as one organisation obscures that an Acute NHS Trust can have clearly delineated levels, where macro level relates to senior executives who focus on strategic planning and overall responsibility for safety management and providing leadership. The meso level comprises the matron and managers who are responsible for implementation of policies and practice and delivery of services within their

departments. The micro level comprises of ward staff (nursing and healthcare assistants) and the ward manager who has overall responsibility to provide and implement practices and provide direction to staff and who works in collaboration with meso and macro levels to comply with Trust practices. The structure is hierarchical in nature with role and job descriptions providing the overall guidance on the chain of command. This reflects the human factors framework formulated by Karsch *et al.* (2014) which was developed in light of their exploration of causal linkages in complex systems when disasters (such as the Herald of Free Enterprise at Zeebrugge) occur and employed by other researchers exploring patient safety (for example, Conner, 2017 and Waterson, 2020). In this thesis, the terms 'macro', 'meso' and 'micro' and the role of personnel at these levels are understood as follows:

Table 1.1: Roles at Macro, meso and micro level (Personnel)

Organisational level	**Personnel**	**Role Review**
Macro	Senior executives (Trust Board)	Organisational leadership, strategic decision-making
Meso	Middle management (Matrons and Divisional Operational Managers)	Responsible for clusters of wards or divisions, strategic responsibility for workforce planning and budget and operational issues
Micro/ Unit	Ward team (Ward manager, registered nurses, healthcare assistants)	Ward managers oversee implementation of organisational policies/ procedures at ward level and report to Matrons: delivery of nursing care is main role of RNs below ward manager level and HCAs

Individual ward culture (micro) shown in the individual and group attitudes and patterns of behaviour and middle management (meso) culture shown in the commitment to and processes put in place to manage patient safety are heavily influenced by the overall (macro) culture of the organisation. This study explores and differentiates these varied influences that shape the provision of safe care and harm avoidance that stem from the

management, provision, and delivery of care perspectives at micro, meso and macro levels of an organisation.

1.5 Study aim

To understand the perceptions of, and influences on, the patient safety culture within an acute Trust in England.

1.6 Theoretical underpinning

Patient safety culture is a well-researched area, but heavy focus has been placed on error avoidance, fault finding, and blame attribution. Gaining a better understanding of what enables or inhibits a positive patient safety culture within an organisation is of key importance. The theoretical underpinning of this study is Open Systems Theory (OST) presented in Chapter 4. As Aveyard (1997) suggested in relation to evidence-based practice, clinical judgements are impacted by interactions with others, the surrounding environment, and sometimes changes within other organisations therefore he argued that healthcare provision is better viewed as an open system than a closed one. Instead of focusing on adverse events, causation and attributing blame, OST embraces the importance of examining influences. How people perceive patient safety culture and behave in relation to risks of harm is influenced by aspects of the surrounding system.

1.7 Personal rationale for undertaking this study

The underpinning rationale for this thesis was a personal interest in safety as a registered nurse for over thirty years and educationalist involved in undergraduate and postgraduate healthcare education. As a theatre practitioner, it was the single guiding principle of everyday practice that underpinned the policies and guidelines which aimed to make the area a safe environment for providing quality care. The Francis and subsequent reports have made me feel frustrated and saddened. In undertaking this study, I hoped to contribute to a deeper or more nuanced understanding of

patient safety culture within the NHS that might help my students combat increasing levels of preventable harm.

1.8 Research setting and methodological approach

As explained in Chapter 4, this present study employed a case study approach. The host organisation was an Acute NHS Trust on the outskirts of a large metropolitan city in England. This organisation shares similar challenges and issues to the other 135 non-specialist Acute NHS Trusts. Because a ward is part of an open system, there will be many influences and feedback loops so it was anticipated a case study with two similar wards in the same organisation would facilitate a deeper understanding to be gained of how patient safety is prioritised, monitored, and managed.

1.9 Thesis structure

Chapter 2 presents an Umbrella review (Joanna Briggs Institute) of the contributors to patient safety culture in acute healthcare organisations to identify the gaps in knowledge that this study addresses.

Chapter 3 explains and justifies the use of Open Systems Theory as the theoretical lens for this study. A representative figure based on Open Systems Theory as it relates to Patient Safety Culture, based on the insights gained from previous chapters, is provided. Aims and objectives for the study are presented.

Chapter 4 provides and justifies the research strategy, including selection of data sources, data collection, analysis and synthesis methods, and adoption of Yin (2014) case study methodology. Ethical considerations are examined in detail.

Chapter 5 presents study findings in line with the Open Systems Theory framework in relation to inputs, throughputs and outputs.

Chapter 6 examines patient safety culture and this study's findings through the lens of Open Systems Theory contextualising them in relation to existing literature. It concludes by revisiting the figure identified in Chapter 3 in light of the insights revealed.

Chapter 7 concludes the thesis by revisiting the study aim, identifying the original contribution to knowledge and implications for patient safety within an Acute NHS Trust, acknowledging the limitations of the study as well as its strengths, then making recommendations for future research and practice in relation to patient safety culture.

1.10 Summary

This chapter has provided an explanation of the importance of patient safety culture in relation to the avoidance of patient harm and defined key terms. Recommendations implemented following inquiries into patient harm along with strategies from agencies tasked with improving patient safety have met with some success but still some Trusts are rated as inadequate by the Care Quality Commission. Healthcare systems are complex with aspects of the system contributing to perceptions, harm-avoidance behaviours, and patient safety culture so worth viewing through the lens of Open Systems Theory.

Chapter 2 Umbrella review of contributors to patient safety culture in acute healthcare organisations

2.1 Introduction

Chapter 1 has identified that the concept of patient safety is of high importance and there is a need to reduce the risks of errors and harm occurring to patients during the provision of healthcare. Patient safety culture (PSC), as defined in Chapter 1 (s.1.1.3), is where a high level of importance is placed on values, attitudes, perceptions, and behaviours within an organisation. This chapter presents an Umbrella Review utilising the Joanna Briggs Institute Manual Chapter 10: Umbrella reviews as outlined by Aromataris *et al., (*2020). There is a multitude of primary research examining patient safety culture, both in terms of contributory and influencing factors and studies looking at the impact of strategies to improve patient safety making it one of the 'grand challenges' in healthcare (Jha, 2019). Consequently, personal biases can affect literature selection leading to a skew towards more-readily available texts, thereby lacking representativeness, and failing to anchor both researcher and study (Tversky and Kahneman, 1974). An Umbrella review provides an opportunity to look widely across existing evidence, based on where reviews have addressed similar questions (Collins and Fauser, 2005) allowing for a synthesis of existing literature that has established what is already known (Aromataris *et al.,* 2020) and to identify where gaps in the current best evidence to date exist that this study can help address. The aim of this Umbrella review is to answer the question '*What contributes to patient safety culture at ward level within acute healthcare organisations?'*

2.2 Umbrella review methodology

The growth in the number of systematic reviews over the past number of decades has provided clinicians and decision makers in healthcare with an increasingly robust evidence base. More recently, the review of existing systematic reviews and their synthesis provides both policy and decision

makers the evidence base for such changes (Smith, *et al*., 2011). Such "Umbrella" reviews allow the findings of separate reviews to be compared and contrasted (Smith, *et al*., 2011). Existing systematic reviews are seen along with meta-analysis reviews as being at the top of the hierarchy of evidence pyramid and thus providing evidence and guidance for practice.

The development of methodological guidance for the conduct of Umbrella reviews also known as 'review of reviews' has provided researchers with a unified approach to conducting and synthesis of existing evidence. The Joanna Briggs Institute (JBI) Manual for Research Synthesis provides a developed methodological guide for the conduct of an Umbrella review that includes both quantitative and qualitative evidence from differing forms of systematic reviews and offers step-by-step instructions and related checklists (JBI, 2020) [online access on line 02/12/20]. A JBI review requires "a minimum of two reviewers to conduct a systematic review" (JBI, 2020) therefore, one of my supervisors worked with me to develop the review protocol and independently carried out searching, sifting, data extracting, appraising and theme development. Discussion and agreement between the two reviewers took place as indicated by the JBI.

The review is reported by drawing upon key elements of the PRISMA checklist (Preferred Reporting Items for Systematic reviews and Meta-Analysis) for the reporting of systematic reviews (Moher et al. 2009). The PRISMA checklist identifies that the following steps need to be addressed:

Method

- Set the eligibility criteria i.e., the scope of the review
- Identify all information sources
- Present the search strategy
- Identify the variables of interest
- Describe the data extraction process
- Describe how quality appraisal and risk of bias was assessed
- Explain synthesising process

Results

- Give numbers of studies assessed, number included and reasons for exclusion with a Prisma flow chart
- Present characteristics of included reviews
- Provide data on quality appraisal/risk of bias
- Present synthesis of included reviews

Discussion

- Summarise findings and consider relevance
- Discuss limitations of this Umbrella review

Conclusion

- Summarise and identify implications for future research

2.2.1 Scope of the review

Population = acute healthcare organisations

Exposure = contributing factors

Outcome = patient safety culture

2.2.2 Inclusion/exclusion criteria

Inclusion criteria

- Systematic reviews, integrative reviews, narrative reviews, and literature reviews related to staff perception of patient safety culture
- Within acute hospital ward settings
- Registered nurses and other healthcare staff involved in direct nursing care or responsible for nursing care within acute care organisations or hospital settings
- No date limits
- Peer reviewed and available in English

Exclusion criteria

- Individual research studies related to patient safety culture including intervention-based studies
- Reviews focused solely on interventions to improve patient safety or patient safety outcomes

- Reviews that solely focused on non-hospital settings (i.e. primary care or community) or where data on the acute setting is not possible to be extracted.
- Full text not available in English

2.2.3 Search method

The search strategy involved was conducted with the aid of a university specialist librarian. Several scoping searches were conducted to maximise sensitivity and specificity (Ocloo *et al.,* 2021). A search of the following databases via EBSCO Discovery System (EDS) (see appendix 1 for the full list of databases included within EDS). In addition, Academic Search Complete (including Cinahl, Psych Info, Psych Articles, Medline, OpenDissertations), was also searched utilising the same search string and then duplicates were removed. No date parameters were set. The last search was completed on 1 March 2021.

For both EDS and Academic Search Complete, the filters additionally included peer-reviewed and published or available in English language. No date parameters were set. Other databases searched included the Cochrane database and for grey literature, Open Grey (https://opengrey.eu) was utilised. Other grey literature sites (Grey Literature Report (https://greylit.org) and Google Scholar (https://scholar.google.com) were also searched relevant to this review utilising the same search strings adjusted for these specific databases. The reference lists and bibliographies of included reviews were searched for additional reviews that matched the inclusion/ exclusion criteria. Forward citation searching was also employed (Wright *et al.,* 2014).

'Culture' and 'patient safety culture' are not MESH terms but 'patient safety' is. The following search string and terms were employed in the following order to obtain the maximum number of hits after initial search identified variation in number of hits based on the string sequence:

> Patient safety culture or culture of patient safety or patient safety climate [Abstract]

AND

acute healthcare or acute healthcare or acute trust or acute hospital or acute ward or medical ward or ward [All text]

AND

review of the literature or meta-analysis or meta-review or meta-review or meta review or literature review or integrative review or conceptual review or systematic review or review or review of reviews or umbrella review [Abstract]

To ensure replicability, the same search strings were employed on the same databases by two reviewers (myself and one of my doctoral supervisors) working separately. The number of hits was compared and found to match (once an EBSCO Host idiosyncrasy that produced different hits according to the search string order was identified). Each reviewer screened hits independently by both titles and abstracts following which both reviewers discussed and agreed the reviews, based on the inclusion and exclusion criteria (s.2.2.2) that should be screened in detail. The papers that passed title and abstract screening were retrieved and the same process was applied with both reviewers independently reviewing the full texts to establish which reviews met the full eligibility criteria following which a meeting took place to discuss the outcome.

2.2.4 Data extraction process

Variables of interest included any factor (human, systems, or organisational) that was considered to be relevant to patient safety culture in the included reviews. Data were extracted from the reviews included in this Umbrella review using the standardized data extraction form from the Joanna Briggs Institute Manual for systematic reviews and research synthesis as outlined by Joanna Briggs Institute manual. This process was completed independently by both reviewers and information was obtained in relation to the following characteristics of the included reviews including authors, objectives, participants and settings, search details, number of studies and country of origin, and a summary of findings.

Information was extracted on the following:

- Characteristics of the review such as, type of review including definitions, overall aims/objectives, theoretical underpinning, search sources utilised, and timeframes
- Characteristics of the included studies, such as numbers of studies, geographical location of included studies. characteristics of participants i.e. designation, total numbers and settings, methodological approaches, patient safety culture measurement tools
- Definitions of patient safety culture employed by reviewers
- Summary of findings regarding influences on patient safety culture
- Summary of findings regarding perceptions of patient safety culture,
- Recommendations for future research.

2.2.5 Quality appraisal and risk of bias assessment

All the included reviews were assessed for methodological validity by using the JBI's critical appraisal checklist for systematic reviews and research synthesis. The appraisals were completed independently by both reviewers following which discussion occurred to achieve consensus.

A scoring system was applied. Scores were calculated dependant on the following key [Y = Yes = 2; N = No = 0; N/A = non-applicable = 0; and U is unclear = 1] as outlined by the JBI checklist. No reviews were excluded on grounds of quality. RAG rating (Turner-Stokes *et al.,* 2006) allowed visual identification, see below of review quality in the data extraction table. No review was excluded on grounds of quality.

Table 2.1 RAG rating of reviews

RAG rating (Red, Amber, Green)	Score (out of 22)	Quality Assessment
	0-10	Low Quality
	11-16	Medium Quality
	17-22	High-quality

2.2.6 Synthesising process

A narrative synthesis was conducted since the review question was seeking to identify what contributes to patient safety culture not quantify impact. The approach identified in the JBI Manual for Evidence Synthesis was adopted (JBI s.2.7.6.4). This entailed extracting data from all included reviews (section 2.2.5 above) and establishing the credibility of each (s.2.2.6 above). Next, suitable categorisations were identified (and agreed between the reviewers). Based on the contextual overview presented in Chapter 1, categories that were able to be predicted in advance included geographical origin, definitions of patient safety culture, and factors (human, systems, and organisational) that impacted on patient safety culture. The quality and risk of bias inherent within included reviews was also a category. Other categories were identified as a result of data extraction on the grounds that, as the JBI Manual identifies, there were a minimum of two findings per category (an example of this is the category related to Recommendations for future research). The final stage identified by the JBI is to develop one or more synthesised findings embracing at least two categories. The category descriptions were agreed by the two reviewers.

2.3 Results

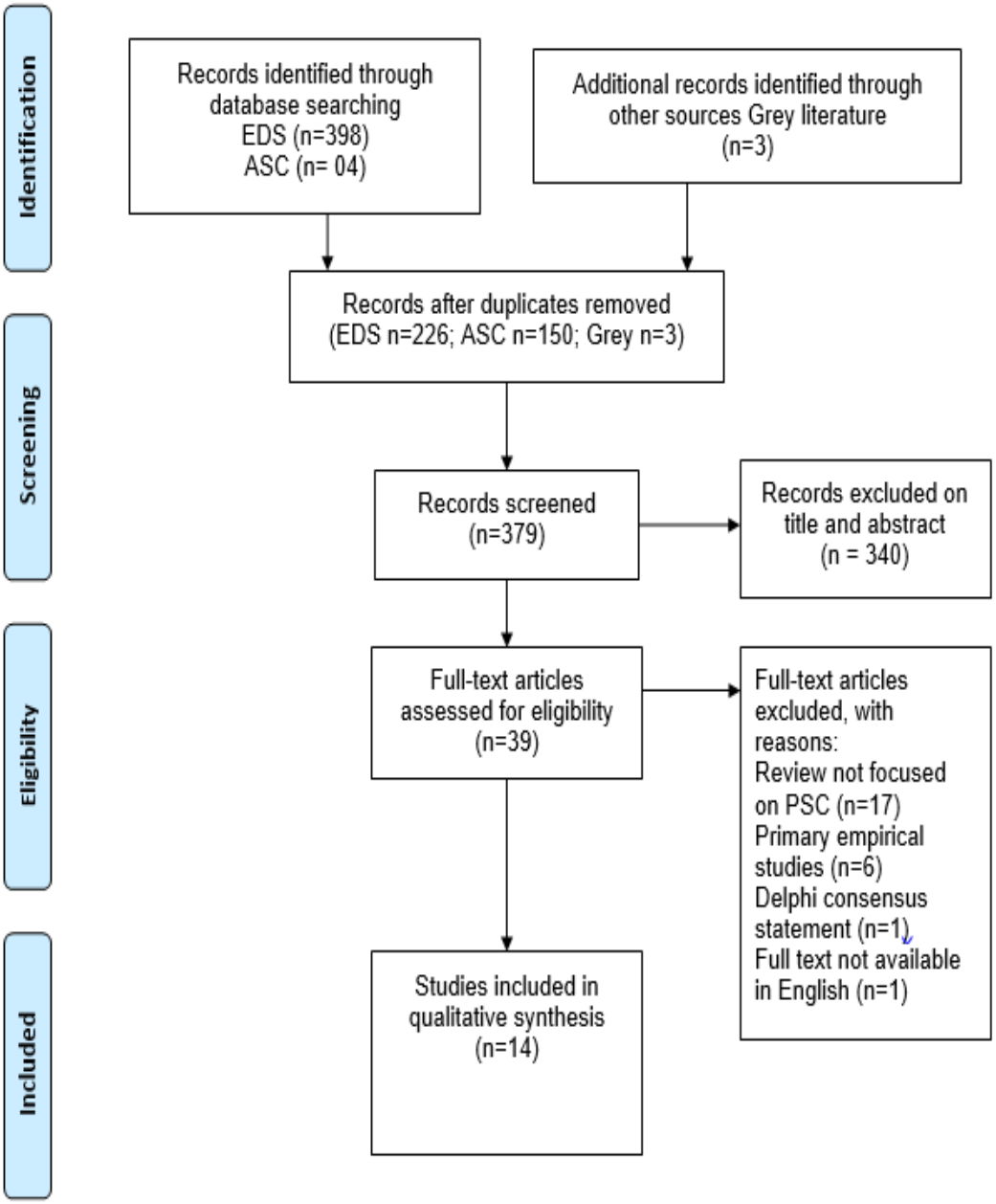
2.3.1 Search outcome

The initial search of EBSCO's Discovery service (EDS) (n=398) and Academic Search complete (ASC) (n=304) produced a total of 702 records for screening). A further 3 records were identified following searches of grey literature. Following removal of duplicates, a total of n=379 for screening. Screening these by title and abstract resulted in the rejection of n=340 records leaving 39 records for full-text retrieval. Following full-text screening, the following n=25 reviews were excluded because:

- Review not available in English (n=1) [Kareny da Silva *et al.,*2016];
- Review focus not on influences on, or perceptions of, patient safety culture (n=17)

    - assessing psychometric properties of survey tools [Alsalem *et al*., 2018]
    - barriers to reporting medication errors [Vrbnjak and Denieff, 2016]
    - environmental design on nursing errors [Chaudhury *et al*., 2009]
    - factors relating to knowledge management [Lunden *et al*., 2017]
    - generational characteristics of nurses [Stevanin *et al*., 2018]
    - inter/multi-professional care [Husebo and Akerjordet, 2016; Paradis, 2013]
    - new graduate nurse transition [Murray *et al.,* 2020]
    - nursing fatigue [Smith-Miller *et al*., 2014]
    - nursing handovers/safety briefings (n=2) [Bressan *et al.,* 2020; Ryan *et al.,* 2019]
    - organisational context and quality of care (n=2) [Brand *et al.,* 2012; Ying *et al.,* 2021]
    - patient participation in patient safety [Vaismoradi e*t al.*, 2015]
    - relationship between patient safety culture and outcomes (n=2) [Groves, 2014; Singer *et al*., 2009]
    - safety interventions [Pannick *et al.,* 2014]
- Individual research studies (n= 6) [Clay-Williams *et al*., 2014; Hessels and Larson, 2016; Padgett e*t al.,* 2017; Van Buijtene and Foster, 2019; Wilson, 2011; Zadvinskis *et al*., 2018]
- Delphi consensus statement (n=1) [Fischer *et al.,* 2018]

Fourteen reviews were eligible for inclusion as shown in the Prisma Diagram overleaf (Figure 2.1). The data extraction table in Appendix 2 provides the characteristics of the included reviews.



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement.* PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

Figure 2.1 Preferred Reporting items for Systematic Reviews and Meta-Analysis (PRISMA) adapted from Moher et al., (2009)

2.3.2 Characteristics of included reviews

Of the fourteen reviews meeting the eligibility criteria for this Umbrella review, five were systematic reviews [Brasaite *et al.,* 2015; Elmontsri *et al*., 2017; Reis *et al*., 2018; Ross-Walker *et al*., 2012; Weaver *et al.,* 2013]; two were integrative reviews [Baratto *et al., 2016;* Willmott and Mould, 2017]; three were literature reviews [Halligan and Zecevic, *2011*; Lee *et al.,* 2019; Sammer *et al.,* 2010], two were narrative reviews [Alqattan *et al., 2019;* O'Donovan *et al.,* 2019]*,* one a conceptual review [Feng *et al.,* 2008] and one a scoping review [Goedhart *et al.,* 2017]. The date of publication of included reviews covered a range of years from 2008 to 2019. In total, n=508 articles/studies/opinion papers were included within this Umbrella review.

2.3.3 Geographical context

The geographical location for the lead authors was as follows. Australia: Ross-Walker *et al*., (2012); Weaver *et al.,* (2013); Willmott and Mould, (2018); Brazil: Baratto *et al.,* (2016); Reis *et al.,* (2018); Canada: Halligan and Zecevic, (2011); Finland: Brasaite *et al.,* (2015); Ireland: O'Donovan *et al.,* (2018); Netherlands: Goedhart *et al.,* (2017); United Kingdom: Elmontsri *et al*., (2017); Alqattan *et al.,* (2019)*;* United States of America: Feng *et al.,* (2008); Lee *et al., (*2019); Sammer *et al*., (2010).

The geographical origin of included studies was not always apparent; Feng *et al*., (2008) merely stated their included texts were "mainly" from America (all their empirical studies were from the USA). Halligan and Zecevic, (2011) identified by origin only 122/139 included texts and the origins of O'Donovan *et al*.'s (2018) studies were identifiable only by reference checking. In total, the number of studies/papers with identifiable geographical origin was n=437. Ranking the countries of origin from the most studies/papers to the least number shows the following: USA (n=230), European Union (n=57), UK (n=43), Arab (n=35), Canada (n=33), Australia (n=11), Far East (n=11), South America (n=6), China (n=5), Norway (n=3), Israel (n=2), Africa (n=1).

2.3.4 Quality appraisal

Reviews were appraised using the JBI Critical Appraisal Checklist (Text Box below) for Systematic Reviews and Research Syntheses questions which are:

Q1. Is the review question clearly and explicitly stated?
Q2. Were the inclusion criteria appropriate for the review question?
Q3. Was the search strategy appropriate?
Q4. Were the sources and resources used to search for studies adequate?
Q5. Were the criteria for appraising studies appropriate?
Q6. Was critical appraisal conducted by two or more reviewers independently?
Q7. Were there methods to minimize errors in data extraction?
Q8. Were the methods used to combine studies appropriate?
Q9. Was the likelihood of publication bias assessed?
Q10. Were recommendations for policy and/or practice supported by the reported data?
Q11. Were the specific directives for new research appropriate?

Joanna Briggs Institute Manual (JBI, 2020)

Table 2.2 identifies the scores agreed against the reviews appraised and following discussion between the two reviewers. Scores on individual reviews ranged from a score of 9 to the highest at 22 with a mean score of 17. As identified, the lowest percentage scored question across all reviews was question (Q9) i.e. the likelihood of publication bias with only 7% of reviews having addressed this issue. Question (Q6) the identification of critical appraisal by two reviewers independently was identified in only 43% of the reviews. Question (Q10) examined recommendations for policy/practice supported by the reported data of which only 64% identifying recommendations. Question (Q7) identification if methods were used to minimise errors in data extraction with 57% identifying methods

utilised. One review (Goedhart et al., 2017) was potentially biased since 5 of their 12 studies were by Laschinger and her team.

Table 2.2: Assessment of methodological quality of included reviews

Study Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	score
Algattan *et al*., (2019)	Y	Y	Y	Y	Y	U	N	Y	N	N/A	Y	16
Barratto *et al*., (2016)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	20
Brasaite *et al*., (2015)	Y	Y	U	U	Y	Y	Y	Y	N	N/A	Y	16
Elmonstri *et al*., 2017)	Y	Y	U	Y	Y	U	N	U	N	Y	Y	14
Feng *et al*., (2008)	Y	U	Y	Y	N	N	N	Y	N	N/A	N/A	9
Goedhart *et al*., (2017)	Y	Y	Y	Y	Y	Y	Y	Y	U	Y	Y	19
Halligan and Zecevic (2011)	Y	Y	Y	Y	N	N	N	Y	N	Y	Y	14
Lee *et al*., (2019)	Y	Y	U	Y	Y	U	N/A	Y	U	N/A	Y	14
O'Donovan *et al*., (2018)	Y	Y	Y	Y	Y	N	Y	Y	U	Y	Y	19
Reis *et al*., (2018)	Y	Y	Y	Y	Y	Y	Y	Y	U	Y	Y	19
Ross-Walker *et al*., (2012)	Y	Y	Y	Y	Y	Y	Y	Y	N	N/A	Y	19
Sammer *et al*., (2010)	Y	Y	U	U	N	N	Y	Y	N	Y	N	12
Wilmott and Mould, (2018)	Y	U	Y	Y	N	N	U	Y	N	Y	Y	12
Weaver *et al*., (2013)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	22
100% YES	100	86	71	86	71	43	57	93	7	64	86	Mean = 17

2.3.5 Methodological Quality of Studies included in the Reviews

Brasaite *et al.,* (2015) and Alqattan *et al*., (2019) had the methodological appraisal of included studies as a central aim unlike the other reviews. Despite this, Alqattan *et al*., (2019) made no comment regarding the overall quality of their included studies. Brasaite *et al.,* (2015) employed the Joanna Briggs criteria for assessing the quality of articles selected to be included in the review with two independent reviewers involved in the selection process.

The level of appraisal varied. Reis *et al.,* (2018) utilised the Strengthening the Reporting of observational studies in Epidemiology (STOBE) 22-item checklist Statement since included studies used observational design and identified highly-detailed weaknesses in study design including reporting participants, data collection periods, how data were collected and response rates. Alqattan *et al*., (2019) used five questions from the Critical appraisal skills programme, (CASP) checklist to determine the

methodological quality of the qualitative studies included however it was unclear if two reviewers as recommended (Hannes, 2011; Joanna Briggs Institute nd) were utilised to assess the methodological quality of the included studies. Weaver *et al.,* (2013) identified that two reviewers were utilised in the selection of the final articles no further detail was provided in relation to any tools utilised to assess methodological quality of the final included studies/articles. Feng *et al.,* (2008), Halligan and Zecevic, (2011) and Willmott and Mould, (2018), did not identify either the use of independent reviewers to assess quality or whether appraisal tools were utilised to assess methodological quality. Sammer *et al.,* (2010) made no mention of quality appraising their included studies.

Ranking of evidence varied. Ross-Walker *et al*., (2012, p.3092) utilised the Joanna Briggs Institute JBI-QARI and JBI-NOTARI checklists with two independent reviewers assessing the quality and reported that all the studies included in their review were of "high academic quality". Elmontsri *et al*., (2016) employed an adapted version of the Newcastle-Ottowa scale but no comment on overall study quality was made. Their online supplementary file showed that scores ranged from 5-9 out of a possible 10 and 10 of their 18 studies scored 7 or higher indicating good quality, 7 studies scored 6 and 1 study scored 5. Lee *et al*., (2019) employed 13 questions from a quality assessment and validity tool they adapted from previous systematic reviews but rather than presenting quality scores for individual papers, they summarised the number of studies that answered No/Yes to their questions.

Barrato *et al*., (2016) made a general observation on the limitations of their included studies, namely "low response rates…incomplete answers, small and not random samples…small number of institutions or evaluated sectors". Brasaite *et al., (*2015) admitted that their narrow use of keywords may have impacted on the numbers of primary studies retrieved (a methodological weakness in their review design – see s.2.3.4) and acknowledged that only 3 of their 18 primary studies provided the strongest level of evidence. Goedhart *et al.,* (2017) used the Quality

Assessment and Validity Tool for Correlation Studies and stated that low quality studies were excluded from their review but did not identify how many.

2.4 Narrative Synthesis

2.4.1 Definitions of Patient Safety Culture

Of the 14 reviews included, only 7 provided a definition of Patient Safety Culture [O'Donovan *et al.,* 2018; Elmonstri *et al*., 2017; Feng *et al*., 2008; Lee *et al*., 2019; Sammer *et al.,* 2010; Weaver *et al*., 2013; Willmott and Mould, 2018]. Willmott and Mould, (2018) and Sammer *et al.,* (2010) utilised the Agency for Healthcare Quality and Research definition (2016) where "patient safety culture is described as the shared attitudes, beliefs, values and perceptions of safety issues within an organisation". Lee *et al.'s* (2019) review provided a definition of safety culture from the ACSNI-HSC (1993) which states that it is "the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to and style and proficiency of an organisation's health and safety management".

Elmonstri *et al.,* (2017) utilised the WHO's definition of patient safety "as the reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum" and identified patient safety culture as a component of the organisational culture that includes the shared beliefs, attitudes, values, norms and behavioural characteristic of employees". Weaver *et al*., (2013) defined patient safety culture by drawing on Schein's definition of organisational culture as being personified by shared values, beliefs, norms, and procedures related to patient safety among members of an organisation unit or team. Feng *et al*., (2008) drawing on the British Health and Safety Commission (ACSNI-HSC, 1993) defined safety culture as "a product of individual and group values, attitudes, competence and patterns of behaviour that determine the commitment to, and the style and proficiency of and organisations health and safety programmes". O'Donovan *et al.,* (2018) purported, similar to Feng *et al., (*2008), that

while there is no universally accepted definition of safety culture in the context of nursing that it is a product of each nurse's values and beliefs towards patient safety. As identified in Chapter 1 (s.1.1.3), the definition of patient safety culture adopted in this thesis is the same as Feng *et al.,* (2008).

2.4.2 Review Foci

Of the 14 reviews included, as expected all identified a review question or aim. Influences on patient safety culture were identifiable regardless of whether this was a specific objective. Four reviews aimed to add to a conceptual understanding of patient safety. Brasaite *et al.,* (2015) identified three questions for their review including how the concept of patient safety been defined in studies focusing on healthcare professionals' knowledge and skills and identifying which areas had been investigated in relation to professionals' safety knowledge, attitudes, or skills. Feng *et al*., (2008) aimed to carry out analysis of the concept of safety culture in nursing. Barrato (2016) aimed to capture what "has been produced on the subject of patient safety and organisational culture in hospitals". Sammer *et al*., (2010) looked to identify the properties of safety culture and thus develop a conceptual culture of safety model.

Capturing perceptions of patient safety culture was the aim in five reviews. Elmonstri *et al.,* (2017) focused on the overall status of patient safety culture in Arab countries. Feng *et al.*'s (2008) analysis of the concept of patient safety culture had a second review question focused on capturing perspectives of patient safety culture in each study. Willmott and Mould, (2018) reviewed (1) health professionals' perspectives regarding patient safety and whether these differed among different health professionals, (2) whether the perception of patient safety culture was different at the hospital versus ward level, and (3) whether clinicians and managers placed the same importance on patient safety culture. Perceptions of patient safety culture were also identified identifiable in Barrato *et al.,*

(2016), Brasaite *et al.,* (2014), Sammer *et al.,* (2010) and Weaver *et al.,* (2013).

Two reviews examined the methodological quality of research studies as a central aim. Brasaite *et al*., (2015) aimed to examine the methodological characteristics of previous empirical studies on patient safety culture. Alqattan *et al*., (2019) aimed to evaluate the methodological aspects of existing qualitative studies which focused on patient safety culture in hospital settings and identify gaps in knowledge.

Two reviews considered patient outcomes. Lee *et al*.'s (2019) aim was to look at the relationship between safety culture and quality of care in relation to patient outcomes. Weaver *et al*., (2013) examined how organisational interventions altered perceptions of safety culture in healthcare and assessed effectiveness regarding safety culture and patient outcomes.

2.4.3 Factors Identified as Influencing PSC

2.4.3.1 PSC survey tools identified in reviews

Patient safety culture (PSC) measurement is designed to provide a sense of how at risk an organisation is of patient harm occurring. The patient safety measurement tools identified within the included reviews were (i) the AHRQ-HSOPSC tool – the Agency for Healthcare Research and Quality (AHRQ, https://www.ahrq.gov), the Hospital Survey on Patient Safety Culture (HSOPSC) and the Scottish Hospital Safety Questionnaire are all the same but given different labels in the literature: Sorra and Nieva, 2004), (ii) Safety Attitudes Questionnaire (SAQ), (iii) Patient Safety Climate in Healthcare Organisations (PSCHO) and (iv) Safety Organizing Scale (SOS). All these employ Likert response scales and range in items and number of dimensions from 5 in SOS and 60-141 distributed under 36 climate dimensions in the remainder (Alsalem *et al.,* 2018).

The reviews by Willmott and Mould,(2018); Reis *et al.,* (2018) and O'Donovan *et al*., (2018) focused on studies that had measured patient safety; 6 studies employed the AHRQ Survey on Patient Safety Culture (Agency for Healthcare Research and Quality), n=2 studies employed the Safety Attitudes Questionnaire (SAQ), n=1 study employed the Patient Safety Climate in Healthcare Organizations tool (PSCHO), n=1 employed the Stanford/Patient Safety Culture Inventory (PSCI) and n=1 study the Scottish Hospital Safety Questionnaire. Lee *et al* (2019) framed their review report around the PSCHO. Ross-Walker *et al*., (2012) argued that there are a number of immeasurable cultural factors such as nursing workloads and the impact on staff and patient safety that are a feature of hospital environments and measurement of this culture via a safety climate snapshot (for example through staff surveys) may not highlight this fact. Alqattan ***et al.'s*** (2019) review identified that patient safety culture comprises both objective (e.g., healthcare providers' behaviours and practices) and subjective aspects (beliefs, values and attitudes about patient safety) and that the latter are missed by quantitative survey-based organisational snapshots.

2.4.3.2 Key influences on patient safety culture

The reviews offer insight into which factors contribute most strongly to patient safety culture, however, Lee *et al.,* (2019) found a lack of consistency across studies regarding what influenced patient safety culture. This lack of consistency is evident in the reviews included in this Umbrella review as differing perspectives were revealed in relation to patient safety culture and organisational hierarchy, culture at organisational and unit (ward) level, influences upon ward patient safety culture and individual personnel.

External and internal influences on organisational patient safety culture included staffing, communication, non-human resources, and patient-related factors according to Alqattan *et al*., (2019). Safety initiatives can have positive impacts on patient safety according to Ross–Walker *et al*., (2012) but Brasaite *et al*., (2015) found these may have a negative impact

on wards if ward leaders are taken away from spending time nurturing and developing staff on the ward. Weaver *et al*.'s (2013) systematic review (included as it reported perceptions of patient safety culture and organisational context although it primarily focused on interventions to promote patient safety culture within adult or paediatric settings) revealed that although staff perceptions could be altered, interventions to improve patient safety culture may not reduce patient harm (only 6 of 11 included studies had improved outcomes) and may even result in decreased error reporting.

Organisational hierarchy influenced patient safety culture according to Barrato *et al.,* (2016) and Goedhart *et al.,* (2017). Barrato *et al.,* (2016) identified that hierarchical organisational cultures are negatively correlated with patient safety as are managers who are weak or poor communicators. Goedhart *et al.,* (2017) identified the role of both structural empowerment and psychological empowerment for nurses on safety of care within units and how these reflected nurses' patient safety culture.

Organisational culture influenced patient safety culture with Reis *et al*., (2018) arguing that organisational culture in relation to patient safety is underdeveloped. Sammer *et al.,* (2010) identified seven sub-cultures as influences on safety culture: Leadership, Teamwork, Evidence based practice, Communication, learning organisation, Just culture, Patient-centred and pointed out that cultures vary across organisations from department to department, unit to unit, individual to individual. Sammer *et al.,* (2010) further identified links between organisational culture, a rapidly changing workforce and financial and quality success.

More open communication about errors with a non-punitive culture to encourage more reporting and to use opportunities to learn from such errors were influencers reported by Alqattan *et al.,* (2019), Barrato *et al.,* (2016), Elmonstri *et al*., (2017) and Sammer *et al.,* (2010). In particular, changing to non-punitive approaches to error reporting was seen by Elmonstri *et al*. (2017) as fundamental to improving safety culture in Arab

countries whereas in non-Arab countries, a non-punitive approach was already more embedded. Similarly, Baratto *et al*., (2016) identified problematic organisational cultures along with patient safety culture where managers were punitive or indifferent when errors occurred as influencing patient safety culture. Barrato *et al*., (2016) found the existence of a non-punitive organisational culture that seeks to encourage healthcare staff to report incidences and errors thus creating a culture of learning is a necessity. Although organisational learning (recognised as part of organisational culture) appears in the AHRQ, PSCHO and Stanford/PSCI survey tools, it was a contributor identified in only 7 of the 14 reviews [Alqattan *et al*., 2019; Elmontsri *et al.,* 2017; O'Donovan *et al.,* 2018; Reis *et al.,* 2018; Sammer *et al*., 2010; Willmott and Mould, 2018].

Differences emerged as to whether ward-level patient safety culture was influenced more by nursing culture or by management culture. Feng *et al*., (2008) and Willmott and Mould (2018) agreed patient safety culture was a subset of organisational culture and a product of nurses' belief system. Willmott and Mould (2018) considered it was influenced by managers' expectations and safety priorities whereas Feng *et al*., (2008) identified nursing culture (shared values, beliefs and behavioural norms) as over-arching dimensions of patient safety culture with contributing factors being management, immediate supervisors, individuals and behaviours, rules, procedures, and reporting systems. Sammer *et al.,* (2010) identified the key role of senior leadership in fostering and nurturing patient safety culture by designing strategies and structures that enable safe processes with intra-professional collaboration among caregivers to achieve a system-wide culture of safety focussed on communication and intra-professional learning from mistakes and errors at all levels within an organisation.

Seven reviews (Alqattan *et al.,* 2019; Brasaite *et al*., 2015; Elmonstri *et a*l., 2017; O'Donovan *et al.,* 2018; Reis *et al*., 2018; Sammer *et al.,* 2010; Weaver *et al*., 2013) agreed on the importance of teamwork. Communication was important according to O'Donovan *et al., (*2018) and

Weaver *et al*. (2013). [Teamwork and communication are considered by the Nursing and Midwifery Council (2018) to be a fundamental aspect of nursing professional behaviour.]

At unit level, the value of executive walkarounds regarding patient safety culture was identified in two reviews (O'Donovan *et al.,* 2018; Weaver *et al*., 2013). Alqattan *et al.,* (2019) and Reis *et al*., (2018) identified the impact of the expectations of managers, supervisors, and actions that promote safety management on unit level patient safety culture. O'Donovan *et al., (*2018) identified leadership and accountability as important but only two reviews identified unit leadership as a key influence (Halligan and Zecevic, 2011; Sammer *et al.,* 2010).

The role of the ward-based nurse was emphasised by Ross-Walker *et al.,* (2012) who saw nurses as an important factor in maintaining systems and compensating for bureaucratic contexts where gaps in the service delivery could threaten patient safety. O'Donovan *et al*., (2018) argued that the nurse practitioner plays a pivotal part in creating and maintaining interprofessional teamwork and bridge the medical and nursing frames of knowledge. In terms of person-related factors, Feng *et al*., (2008, p.317) found that patient safety comes from nurses' values more than management goals, rules or systems and proposed that:

> "patient safety culture is the product of nurses' shared values and beliefs towards patient safety. It is a set of common understandings of nurses in viewing patient safety, and it emerges from the dynamic reciprocal interaction among people, tasks and systems".

Ross-Walker *et al.,* (2012, p.3122) reported that the concept of "cognitive workload" is fundamental to nursing practice and patient safety but is largely immeasurable. However, Brasaite *et al*., (2015) identified that healthcare professionals' knowledge of patient safety was often deficient and training staff on patient safety improved individual staff's perceptions of management. Personal fear of blame and punishment was identified as

negatively impacting on safety behaviours (Alqattan *et al*., 2019; Elmonstri *et al.,* 2016).

2.4.4 Conceptual understandings of PSC

Sammer *et al.,* (2010) highlighted that cultures vary across organisations among units, departments, and individuals. Two contrasting views on whether patient safety culture within an organisation is shaped by macro-level strategies and systems to manage patient throughput or whether it is shaped by the values and relationships of staff within the organisation were revealed through Feng ***et al.'s*** (2008) conceptual review. The first perspective presented in the literature was a 'functionalist' view of systems stemming from an underlying assumptions or core purpose of healthcare organisations that being 'patient safety as the first priority' (Feng *et al.,* 2008). In this functionalist framing of patient safety culture, policies, management structures and control systems express the core purpose of an organisation, which in turn pre-determines the values and beliefs of managers and staff with staff attitudes in turn affecting behaviours. Feng *et al*., (2008) argued that this functionalist view is a linear perspective of a top-down focus on task orientation and construction of safety system policies to manage patient safety and is common in acute organisation.

The contrasting perspective identified by Feng *et al*., (2008) is the 'interpretive' view which adopts a more dynamic nature of safety culture and sees patient safety culture as an emergent property of relationships, values and beliefs of a variety of group members, and where normative values are created by those dynamic reciprocal relationships. The interpretivist view sees patient safety as less reliant on managerial strategies (the foundationalist, top-down perspective) and more related to staff attitudes and beliefs within the power relationships of the day-to-day behaviours towards these goals. Having identified these contrasting perspectives, Feng *et al*., (2008) proposed a reciprocal interactive view that incorporates both functional and interpretive views taking into account the individual, the system, and the task in hand.

At unit level, Ross-Walker *et al.* (2012) conceptualised patient safety culture as influenced by organisational climate, the complexity of hospital environments, bureaucracy, and institutional silos, all of which create inefficiencies. They indicated that organisational climate affects nurses' workloads and how, as a professional group, they compensated for the bureaucracy of the system, often at a cost to themselves (Ross-Walker *et al.,* 2012). This separation from other professional groups was also identified by Barrato *et al.,* (2016) who conceptualised nursing professional culture as differing from that of other ward-based clinicians because job satisfaction, working conditions and teamwork and unity of management were key concepts more strongly related to a positive safety culture in nurses. However, breaking down professional barriers by targeting specific safety training within the multidisciplinary team and sharing knowledge was considered by Brasaite *et al*., (2015) to have a positive impact on safety outcomes as these produced positive patient safety culture attitudes which, in turn, impacted on behaviour resulting in better adherence to the use of clinical protocols and better practices in relation to patient safety.

At individual personnel level, competency, and good skills acquisition, was identified as an essential concept by Brasaite *et al.,* (2015) who viewed it as pivotal to patient safety culture. Ross-Walker *et al.*, (2012) positioned culture as a driver of individual employee behaviour and emphasised the existence of "intangible and largely immeasurable cultural factors" (Ross-Walker *et al.*, 2012, p.3106).

In summary, the concepts relevant to patient safety culture are related to the organisation (its bureaucracy, complexity, institutional silos, and culture), units (wards) and individual competency and employee behaviours. It is unclear whether patient safety culture is driven from the top down or whether it is a component of staff attitudes, beliefs, and values, or both. There is some evidence that different professional groups may have differences in culture and approaches to patient safety culture

with nurses, in particular, being identified as “the ‘glue’ that maintains systems and gaps in service delivery” (Ross-Walker *et al.*, 2012, p.3108).

2.4.5 Perceptions of PSC

Seven reviews provided some insight into perceptions of patient safety culture [Brasaite *et al*., 2015; Elmonstri *et al.,* 2016; Feng *el al.,* 2008; O’Donovan *et al.,* 2018; Reis *et al.,* 2018; Sammer *et al.,* 2010; Weaver *et al.,* 2013]. Four of these included UK studies (n=31). Most including Brasaite ***et al.’s*** (2015) review identified that healthcare professionals held positive attitudes towards patient safety in general and to the process of safety event reporting. However, Brasaite *et al.* (2015) identified that some are still afraid of punitive consequences so their perception of patient safety culture is that errors are punished rather than something that can happen and should be learnt from. Elmonstri *et al.,* (2016), acknowledging the importance of team working and communication between professionals, reported that in countries where medical dominance is still evident resulting in more punitive responses to errors, this negatively impacted on perceptions of patient safety culture. In their review they identified that nurses may have a “different perception” of patient safety culture from directors and administrators (the organisation’s executive) on the grounds that “they are in continuous contact with patients” (Elmonstri *et al.,* 2016), p.10).

Feng *el al.,* (2008) reported that patient safety culture could be perceived as something driven from the top of the organisation (systems-based) or driven from the bottom up (values-based). Sammer ***et al.’s*** (2010) review suggests that patient safety culture is perceived as a top-down approach as they identified the key role that leadership has on the perception of patient safety culture as well as creating a safety culture within an organisation. O’Donovan *et al.,* (2018) reported that perceptions of patient safety culture impact upon the types of interventions to improve it that management consider are appropriate but since Reis *et al.,* (2018) concluded that hospital organisational cultures are under-developed

regarding perceptions of patient safety, top-down interventions might not be as appropriate as management believe.

Sammer *et al.,* (2010) also identified that external perceptions of safety culture within the community served by healthcare organisations impact on attitudes within those organisations. Sammer *et al.,* (2010) further argued that alignment of resources and senior level accountability are key to improving patient safety culture along with the need for open collaborative relationships between frontline and executive level but did not extrapolate from these to the wider community. Similarly, Weaver *et al.,* (2013) identified that perceptions of safety culture were improved when there was more connection between frontline staff and those at executive level.

2.4.6 Theoretical Frameworks

The lack of theoretical framework to studies was highlighted as an issue of concern by Alqattan *et al*., (2019). Theoretical frameworks identified within the reviews included within this umbrella were mentioned in Lee *et a*l., (2019), Alqattan et al. (2019) and Ross-Walker *et al*. (2012). Lee *et al*.'s (2019) integrative review included one study by Ausserhofer *et al*., (2014) that utilised a Systems engineering initiative for patient safety model along with a rationalising of care in Switzerland model and another study by Thomas-Hawkins and Flynn, (2015) that used the Nursing Organization and Outcomes Model. Alqattan *et al.'s* (2019) narrative synthesis identified the use of Vincent's model in one included primary study (Ridelberg *et al*., 2014). Ross-Walker *et al*.'s (2012) systematic review identified that Human performance framework was used in a study by Ebright *et al.,* (2003).

2.4.7 Recommendations for Future Research

Of the 14 reviews included, 9 identified clear recommendations for future research [Alqattan *et al., 2019,* Elmontsri *et al*., 2017; Goedhart *et al.,* 2017; Lee *et al.,* 2019*;* O'Donovan *et al.,* 2018; Ross-Walker *et al*., 2012; Sammer *et al.,* 2010*,* Weaver *et al.,* 2013), Willmott and Mould, 2018].

Alqattan *et al.,* (2019. p.97) identified the need for future studies of patient safety culture to utilise both qualitative and quantitative methods to gain a "more comprehensive understanding of patient safety culture in a particular healthcare organisation" that was identified as lacking within primary studies. Paying detailed attention to individual organisations was also advocated by Willmott and Mould (2018, p.393) who advised that "The hospital patient safety culture, set by the executive, should be the dominant culture but this disconnect needs further exploration". Elmontsri *et al*., (2017) also suggested the need for studies that incorporate a mix of methods with semi-structured interviews to identify root causes as influencers of patient safety culture were lacking in their included primary studies. This was echoed in Ross-Walker *et al.*'s (2012, p.3124) suggestions for future research indicating that qualitative research in the 'real world' would identify the "intangible factors associated with culture and climate…". Halligan and Zecevic, (2011) suggested the need for more studies of culture itself, and more longitudinal studies to observe and measure change over time, while arguing the need for more qualitative based studies to study underlying culture as opposed to the snapshot approach of quantitative surveys to measure safety climate.

Sammer *et al*., (2010) suggested that to fully understand safety culture there is a need to evaluate the relationship with patient safety indicators. O'Donovan *et al.,* (2018) recommended further research examining patient safety culture relationships including teamwork and occupational wellbeing on patient safety is needed. Weaver *et al.,* (2013) advised researching patient safety culture as a cross-cultural contextual factor that accommodates the effectiveness of other patient safety practices. Goedhart *et al.,* (2017) noted that most patient safety culture studies are based in North America and recommended research into the cultural and organisational context in Europe particularly in relation to nursing-sensitive patient safety outcomes. Two reviewers, Lee *et al.,* (2019) and Weaver *et al.,* (2013), identified a need for theoretical frameworks to underpin the strength of evidence.

2.5 Discussion

2.5.1 Theoretical framing of Patient Safety Culture

The synthesis of findings from this Umbrella review identifies a commonality in that researchers often discuss patient safety culture without attempting to define it. Only Elmonstri *et al.,* (2017); Feng *et al*., (2008); Halligan and Zecevic, (2011); Lee *et al*., (2019); Sammer *et al*., (2010); Weaver *et al*., (2013) and Willmott and Mould, (2018) provided definitions. O'Donovan *et al.,* (2018) reaffirmed that there is no agreed definition. It is also clear from the reviews that both the terms 'safety climate' and 'safety culture' have been used interchangeably within primary studies. Therefore, the definition of patient safety culture used in this study was provided in Chapter 1 and distinguished from patient safety climate.

There was a lack of theoretical frameworks underpinning primary research with only Halligan and Zecevic, (2011); Lee *et al.,* (2019) and Ross-Walker *et al*., (2012) identifying any frameworks being employed. Elmontsri *et al*., (2017) and Alqattan *et al.* (2019) were the only reviews carried out by UK-based authors (although other reviews included some UK-based studies). The particular characteristics of the UK healthcare system and external (government-led) influences upon patient safety culture seemed to be ignored despite their potential impact upon theoretical explanations of patient safety attitudes and behaviours. As O'Donovan *et al.,* (2018) highlighted, management's perceptions of patient safety culture influence their introduction of safety initiatives. The lack of theoretical framing has been identified as affecting the quality of evidence of findings and is particularly useful for research involving mixed data collection methods (Evans *et al.,* 2011) and when undertaking exploratory research (Connelly, 2014). Therefore, in this present study, the underpinning theoretical framework is explained clearly (Chapter 3).

2.5.2 Components measured in patient safety measurement tools

The theoretical underpinning of the four patient safety culture tools identified in the included reviews varies according to Halligan and Zecevic (2011). The SAQ originated from aviation and is based on Vincent's (1998) framework for analysing risk and Donabedian's (1997) conceptual model for assessing quality whereas the PSCHO and SOS tools are based on High Reliability Organisation Theory (Halligan and Zecevic, 2011). Alsalem *et al*, (2018) argued that the tools have key similarities and common dimensions but differ in length, theoretical and psychometric properties. Flin *et al*., (2006) highlighted that only the HSOPSC, SAQ and SOS survey tools were considered robust. From a theoretical perspective, patient safety culture tools focus heavily on within-organisation characteristics so fail to take into consideration external influences upon organisational patient safety culture (Alsalem *et al*., 2018). The components measured within these tools relate to factors considered to influence patient safety culture but in reality, the tools provide a snapshot of organisational safety climate at a moment in time. The underpinning premise is that measuring safety climate allows changes in organisational safety behaviours to be identified (Glendon and Litherland, 2001). Overall, the patient safety culture tools indicate that contributing factors relate to aspects of (i) the organisation, (ii) the unit and (iii) individuals (Table 2.1).

Table 2.3 Comparison of Patient Safety Survey tools by domain and factors

Tool	**AHRQ HSOPSC**	**SAQ**	**PSCHO/ PSCI**	**SOS**
Domains/ Factors				
Organisational –related factors	x			
Communication Openness	x			
Feedback and communication about errors	x			
Management support for patient safety			x	
Non-punitive response to error	x			
Organisational learning- continuous improvement	x		x	
Overall perception of patient safety	x			
Staffing	x			

Safety Climate		x		
Perceptions of management		x		
Emphasis on safety			x	
Senior management engagement			x	
Organisational resources for safety			x	
Unit related Factors				
Frequency of events reported	x			
Handovers and transition	x			X
Supervisor / manager expectations and actions promoting safety	x			X
Managers support for unit safety			x	
Unit safety norms			x	
Teamwork / climate across Units	x			
Teamwork / climate within Units	x	x		X
Working conditions		x		
Unit recognition and support for safety efforts			x	X
Collective learning			x	X
Psychological safety			x	
Problem responsiveness			x	
Personal Factors				
Job satisfaction		x		
Stress recognition		x		
Fear of shame			x	
Fear of blame and punishment			x	

The AHRQ-HSOPSC and SOS do not measure individual person-related factors. Whereas the SAQ addresses human factors and job satisfaction aspects, the PSCHO additionally considers risk-taking behaviour, and the SOS incorporates teamwork. Most patient safety culture tools encompass questions related to senior level management, safety systems, safety attitudes of staff, reporting incidents, communication openness and organisational learning and teamwork. Flin *et al.,* (2006) argue that many of the tools were originally derived from safety climate in other high-risk industries where work practices and management structures with clear reporting relationships and very proceduralised practices are in marked contrast to healthcare settings. The complexity of healthcare with a multi-professional and non-professional workforce and multiple, but differing, units within the organisation means that items on patient safety culture tools may be interpreted differently by different professions and by staff at different levels in an organisation so a clear picture of organisational safety culture fails to emerge (Waterson *et al*., 2019).

Most tools are quantitative in nature so inhibit a contextualised, nuanced understanding of organisational patient safety culture, capturing “the story” as Reiman and Pietikäinen (2014, p.196) express it. Distorted perceptions can result therefore triangulation of safety measures is advisable (Glendon and Litherland, 2001). Reliance upon survey tools can misdirect organisational leaders into managing the numbers generated by measures and indicators not underlying problems if “personnel’s expressions of worry about patient safety issues” have not been captured Reiman and Pietikäinen (2014, p.196). Hedsköld *et al*., (2021) suggest that although staff safety culture surveys are often performed to obtain snapshots of organisational culture, the results of which can be used both to implement strategies to improve performance and to evaluate safety initiatives, there is frequently a lack of understanding of how to interpret results or how to use them to guide strategic responses. Organisational hierarchy can also result in failure from higher management to guide frontline managers on how to use survey results and frontline staff are insufficiently consulted about supporting and further developing on-going patient safety initiatives (Hedsköld *et al*., 2021).

2.5.3 The impact of the organisation on patient safety behaviours

Eight reviews [Alqattan *et al*., 2019; Baratto *et al*., 2016; Elmonstri *et al.,* 2017; O’Donovan *et al.,* 2018; Reis *et al.*, 2018; Sammer *et al*., 2010] identified the impact of punitive response to errors and the impact of this culture on patient safety culture. This is also closely linked negatively to safety climate survey tools i.e., AHRQ; SAQ and PSCHO. The evidence from these reviews shows that hierarchical organisational culture is less positively associated with patient safety culture. Lee *et al.*’s review (2019) identified that surveying organisations, even with well-established tools such as the AHRQ, simply shows how that particular organisation compares with other organisations at a particular time rather than identifies its patient safety culture. This means that surveys might help organisations meet community expectations (Sammer, *et al.*, 2010) which

would impact on their reputation locally but fail to offer genuine insight into patient safety culture and patient safety behaviours at ward level.

Brasaite *et al*., (2015) identified healthcare professionals' patient safety knowledge to be deficient and indicated that training staff helped improve ward staff's views regarding management, but the dynamics of how patient safety culture is supported within hierarchical organisations and the relationship between patient safety practices at the frontline remains unanswered. Clinical and organisational leadership plays a role (O'Donovan *et al.,* 2018; Halligan and Zecevic, 2011; Sammer *et al.,* 2010) although not overtly captured in the patient safety culture tools identified in the included reviews (Table 2.1 above). Feng *et al*., (2008) identified two contrasting perspectives on how patient safety culture operates within organisations but, since the complexity of healthcare organisations and their individual differences all play a part in patient safety culture (Baratto, et al., 2016; Ross-Walker *et al*., 2012), the only way to understand whether a top-down, bottom-up or joint approach operates within a particular organisation is to examine that organisation as an entity and to elicit nurses' perspectives since this would be the only way to identify "common understandings of nurses in viewing patient safety…[which emerge] from the dynamic reciprocal interaction among people, tasks and systems" (Feng *et al*., 2008, p.317). Therefore, the present study will seek to explore the understandings of nurses at different levels within an organisation.

A tension exists between the complexity of clinical environments and patient acuity (Ross-Walker *et al*., 2012) and resources such as staff at ward level (Alqattan *et al*., 2019). Ross-Walker *et al.,* (2012) identified that this tension is exacerbated by the use of staffing methodologies (ways of calculating staffing based on patient workload) as part of the safety climate which in turn affect patient safety when managers move staff to manage changing acuity levels across the system resulting in resistance from nursing staff on wards who object to being moved between areas. This resistance could be due to their nursing values (Feng *et al.,* 2008) or it

might be due to fears of being responsible if patient harm occurs (Baratto *et al*., 2016; Elmontsri *et al*., 2017). There could be justifiable concern about the level of knowledge of relocated staff to manage complex patients (Brasaite *et al.,* 2015). However, Ross-Walker *et al.*, (2012) suggested frontline nurses might display dishonest behaviours because of their commitment to patient safety and manipulate data to try to improve staffing levels. Willmott's and Mould's review (2018) highlighted differences between hospital patient safety culture and ward patient safety culture and how each respond to problems and how these contribute to behaviours. Thus, this present study will explore how those at different levels of an organisation respond to the external safety climate, patient complexity and staffing needs.

Feng *et al.,* (2008) demonstrated that nursing and their shared values, beliefs and behavioural norms are overarching dimensions of patient safety culture having already identified that contributing factors to development of patient safety culture are management, immediate supervisors, individuals, and behaviours including rules, procedure, and reporting systems. Patient safety culture is positioned as a subset of organisational culture and a product of nurses' belief system. Despite Ross-Walker *et al*., (2012) conceptualising nurses as the 'glue', Elmontsri *et al.,* (2017) identified a gap in understanding nurses' perspectives. Willmott and Mould (2018) consider ward patient safety culture to be a sub-set of organisational patient safety culture and identified the main influencer of patient safety culture at ward level is the manger's expectations and safety priorities, however, Brasaite *et al*.'s (2015) review concluded that the ward/unit manager has often become distanced from their ward, patient care and nursing team. Therefore, it is unclear whether the ward manager is the person leading patient safety behaviours (i.e., PSC) at the frontline, whether nurses' behaviours, values and patient safety culture are influenced by their profession (Feng *et al*., 2008) or individual beliefs (Alqattan *et al*., 2019) or patient safety culture and patient safety behaviours are shaped by the organisation (Elmontsri *et al.,* 2017; Weaver *et al*., 2013). Thus, there remains a knowledge gap as to

who is shaping patient safety culture at ward level which will be explored in this study.

Weaver *et al*., (2013) indicated that there is little evidence to show that interventions to improve patient safety culture are effective and some might negatively impact upon patient safety behaviours. As organisations have their own nature (Baratto *et al*., 2016), cultures and sub-cultures (Sammer *et al*., 2010) and dynamics (Ross-Walker *et al*., 2012) and surveys of organisations merely provide a time-specific snapshot (Lee et al., 2019), there is a need to conduct deeper, explorations of individual organisations to gain a more nuanced understanding of what helps nurses to keep ward patients safe.

The Umbrella review confirms that nurses are central to patient safety and may compensate for organisational bureaucratic contexts by being the 'glue' that maintains service delivery. However, there a need to understand the interface between nurses' understanding and commitment to patient safety and how organisations, through the management of tasks, resources, structures, and processes support harm-free in-patient care. An in-depth investigation within one healthcare organisation to examine how patient safety culture is perceived and influenced may reveal valuable insights, notwithstanding the individual differences that exist between organisations.

2.6 Strengths and limitations of the review

One of the strengths of this review is that it provides an opportunity to examine amalgamated evidence in relation to what is already known and provides clear indication of the existing gaps within the knowledge based in relation to patient safety culture. Bias can occur through review design, so the JBI Manual procedure was adhered to (JBI, 2020). Utilising a wide number of databases and no time limit along with searches of grey literature and hand searches provided comprehensive coverage. Searching, sifting, data extraction and quality appraisal were also carried out independently by one of my supervisors, categorisation and reporting

were agreed between us reducing the bias from review selection (Aromataris *et al.*, 2020) and review synthesis that can result when there is a sole reviewer (Popay *et al*., 2006).

A limitation of the review is that reviews had to be available in English but patient safety culture is a phenomenon in all healthcare settings so some literature might have been missed. Reviews that purely focused on interventions were excluded so some additional insight may have been lost. Excluding studies that focused on outpatient and non-hospital settings could be both a strength and limitation in that some other factors may have been identified but, since the Umbrella review confirms how organisations and settings differ, focusing on hospital inpatient settings will have provided better, more relevant, evidence for this present study. Review authors included differing amounts of detail in relation to the primary data and this in part limited some analysis or comparison between the reviews, for example, how quality appraisal of included studies was conducted, and which studies were included was omitted from some reviews. The quality of reviews varied with scores on the JBI critical appraisal tool (see s.2.2.5) ranging from 9 – 22 (22 being the highest attainable, with a mean of 14). Feng *et al*.'s (2008) review was the weakest but offered conceptual insights that other reviews did not.

2.7 Conclusion

What is clearly identified within the reviews is that patient safety culture is a sub-set of organisational culture, organisations all differ in their patient safety culture, and within organisations, culture can differ between areas i.e., wards. In addition, how patient safety culture is perceived between individuals, within the differing levels in organisations i.e., wards and management and that the influences and factors differ in individual organisations all play a part in patient safety behaviours. The reviews identify the numerous factors already known, which fall into three over-arching categories (organisation, unit/ward, and personnel) and that leadership, teamwork and communication are highly relevant. Based on

this Umbrella review and Chapter 1, two Guiding Propositions have been identified.

1. The avoidance of patient harm is a reflection of organisational patient safety culture as influenced by aspects of the individual organisation, its people, and organisational, national and international strategies.
2. The provision of harm-free patient care at ward level is linked to aspects of the organisation, the ward itself, patient acuity and the perceptions, understandings and behaviours related to patient safety culture of those providing nursing care.

The philosophy of proposition formulation is that they provide a "framework of circumstances" that help "make it clear what is being considered" in complex real-life situations (Taylor *et al*., 2020, p.4). This Umbrella review has shown that the relationships, dynamics, and nuances need further exploration since healthcare systems are complex, each organisation and ward has its own characteristics, and aspects of the system, as well as external forces (including community perspectives regarding their local healthcare institution and cultural values), contribute to perceptions, understandings and behaviours related to patient safety culture within the organisation and at ward level. Reviewers have recommended more studies at case level (Alqattan *et al.,* 2019; Willmott and Mould, 2018) with a mix of methods to gain insight into the 'real world' of organisations (Elmontsri *et al*., (2017; Ross-Walker *et al.*, 2012) and exploring underlying culture (Halligan and Zecevic, (2011). To gain the more nuanced understanding of patient safety culture that is needed, researchers should identify a clear theoretical and conceptual framework (Lee *et al.,* 2019; Weaver *et al.,* 2013) and apply that lens to individual organisations.

As the findings of this Umbrella review indicate the usefulness of a in-depth exploration, this will be conducted using an open systems lens. The review showed that patient safety culture is influenced by individual

organisational characteristics, how processes are organised, leadership, teamwork and communication at different levels within the organisation, the personnel and their safety-related behaviours. Open Systems Theory (OST) is a way of viewing the many factors that contribute to how an organisation works and captures the complexity of hierarchical organisations operating within a national healthcare system. Chapter 3 will explain OST as a theoretical framework that underpins this study then, drawing on the insights revealed in Chapters 2 and 3, a figure that aims to represent how patient safety culture is influenced within a typical NHS healthcare organisation will be outlined.

Chapter 3: Theoretical Framework

3.1 Introduction

The Umbrella review (Chapter 2) revealed how patient safety culture (PSC) is shaped by aspects of organisational culture, organisational hierarchy and differences between units and professional groups within the organisation. Organisational behaviours are linked to organisational goals, but early versions of organisational theory treated organisations as "self-sufficient entities" (i.e. closed systems) whose systems, structures and operating principles were independent of the wider environment within which they were operating (Thompson and McHugh, 2002, p.55). Acute healthcare organisations (Trusts) in the UK operate within the wider framework of the NHS and the context within which individual organisations operate is now recognised as influencing their nature and development (Thompson and McHugh, 2002).

The first section of this chapter examines explanations of why patient harm occurs then explains and justifies the adoption of Open Systems Theory (OST) (Katz and Kahn, 1978) as the lens for this present study. A theory is "any description of an unobserved aspect of the world and may consist of a collection of interrelated laws or a systematic set of ideas" with 'laws' being "true universal propositions…that express causal or necessary relationships among properties" (Cording Ward, 2008, p.7). The value of theories is that they "enable us to go beyond what we can observe or experience by virtue of their ability to reveal patterns or underlying mechanisms at different levels of analysis, and their observable effects" (Cording Ward, 2008, p.3). A representative figure showing patient safety culture, drawn from the insights from the preceding chapters, is presented and the chapter concludes with the study research question and objectives.

3.2 Why patient harm occurs

Attempts to understand, explain, and prevent patient harm are grounded in existing safety models and frameworks that originated in industries such as aviation, oil and nuclear power. These industries have moved from an approach focusing on what went wrong to a focus on the whole system and the many factors that can contribute to risks. Just as these industries are described as safety-critical because errors would have catastrophic consequences for the environment, the equipment and personnel so too have there been calls for healthcare to be regarded as safety-critical (Royal College of Nursing, 2018).

Models of patient safety can be separated into two broad categories: person-centred (s.3.2.1) or systems-centred (s.3.2.2) approaches to error. Punishment of individuals who make errors was the traditional approach in the belief that this would eradicate error by making healthcare staff more vigilant for fear of blame and retribution (Heraghty *et al.,* 2020). However, research by Harvard Medical Practice in the early 1990s (examining accident causation and error in medicine) led to the seminal *To Err is Human*, (Kohn *et al.,* 1999) which advocated the need to investigate why healthcare systems fail, not solely focus on individuals. Armitage (2009) argued in favour of accepting errors as inevitable due to combinations of environmental, systems, and cognitive processes that predispose humans to error. The shift in emphasis altered understanding of accident causation with a more holistic stance occurring gradually in healthcare safety literature (Carthey, 2013), mirrored in the Department of Health's creating a more open safety and learning culture within the NHS following publication of "An Organisation with a Memory" (DH, 2000) and the introduction of a National Patient Safety Agency (DH, 2001).

3.2.1 Person-based explanations of patient safety errors

Both psychological and social factors are perceived to play essential roles in maintaining safety in high-risk environments such as oil and construction (Anderson *et al.,* 2020). Health services are facing increasing

work pressures with reducing resources, yet practitioners are expected to show increased motivation and stamina for safe work operations despite conflicting priorities and temptations to cut corners (Laschinger and Leiter, 2006). The complexity of interactions between individuals and their surroundings and their cognitive processes, such as coping, resilience and self-efficacy, affect the outcome of potentially stressful events (Lazarus and Folkman, 1984).

People experience stress when they lack the resources to deal with difficult events and this can impact patient safety outcomes (Laschinger and Leiter*,* 2006). Consequently, increasing attention is being paid to the science of human factors and Leonard and Frankel (2010, p.289) consider this appropriate given the "complexity of the clinical environment." Human capital (knowledge, skills, abilities and experience) and social capital (networks of relationships at work) impact on employee performance in the workplace and ultimately patient outcomes. (Sun *et al.,* 2012). Employee perceptions of patient safety culture influence their safety-related behaviours (Tear *et al*., 2020). Culture is "socially constructed" so "different perspectives on organisational culture emerge due to the demarcation of organisational roles, conflicts over resources and the exercise of power" producing differences between components and levels of an organisation (Tear *et al*., 2020, p.555). Tear *et al.*, (2020, p.558) claim that their research into the European Air Traffic Management industry reveals for the first time "that variations in how organisational culture is viewed can be attributed to an interaction between internal (i.e., organisational hierarchy) and external (i.e., national) factors". As one of the largest studies of its kind into a safety-critical industry with 30 countries and over 20,000 participants, their conclusions have particular resonance for this present study.

Over the last two decades, interest in positive organisational behaviour approaches has grown with human and environmental factors identified in many existing patient safety models reflecting the complexity of working in large healthcare organisations (Vincent *et al.,* 2013). Positive

organisational behaviour is “the study of positively orientated human resources, strengths and psychological capacities that can be measured, developed and effectively managed for performance improvement” Luthans (2002, p.59). Seligman (1998) and Csikszentmihaliyi (1998) identified ‘positive psychology’ as studying human functioning at different levels (personal, cultural, biological, relational) and research into ‘psychological capital’ indicates this is a core factor, amenable to development in organisations, which can lead to better safety performance and helps individuals and teams to manage workplace stress (Luthans, *et al.,* 2007). Associated psychological constructs include self-efficacy, optimism, hope and resilience (Luthans, 2002).

Self-efficacy relates to an individual’s ability and confidence to mobilise one’s cognitive resources and execute specific tasks, take on challenges and succeed, and is linked to performance outcomes (Avey *et al*., 2009). People with low self-efficacy are more likely to treat challenges as impossible whereas workers with high self-efficacy are more likely to speak to colleagues and management about safety concerns since greater goal orientation and positivity reinforces safety awareness and safety behaviours (Avey *et al.,* 2009). Optimism is associated with a person’s positive outlook but, in the safety, context needs to be based on realistic evaluations of situations (Luthans *et al.,* 2007). The ability to see possibilities for change in situations negates tendencies to be fatalistic. Hope is another positive motivational state where individuals can identify alternative pathways and contingencies to achieve goals when faced with obstacles (Avey *et al.,* 2009). Research suggests that managers with higher levels of hope have correspondingly higher levels of performance, greater staff satisfaction and staff retention (Peterson and Luthans, 2003). Highly-resilient workers seem more committed to positive work-related outcomes which may produce more safety-focused performance (Hystad *et al.,* 2013). Developing healthcare staff resilience is considered important for their well-being and the organisation’s (Henshall *et al*., 2020).

3.2.2 Systems-based explanations of patient safety errors

Systems-based explanations have continued to gain credence since Waterson (2009, p.4) explained that “adopting a systems ergonomic point of view often affords insights into how actions or occurrences at one level (e.g., an error made by a process operator) collectively interact with team (e.g., situation awareness) and organisational (e.g., safety culture) levels of analysis.” This study is based is the United Kingdom, so models that have been highlighted by the Health Foundation (Vincent *et al.,* 2013) and have applicability to the NHS are reviewed. Key characteristics of included theories and models are presented in Appendix 3. These have gained traction in the healthcare literature (DeSocio *et al.,* 2019) in helping to explain why accidents occur and underpin frameworks for the development of safety monitoring currently utilised in healthcare settings unlike more emergent models such as the CARE and Moments of Resilience models (Anderson *et al.,* 2020).

3.2.2.1 Reason’s Swiss Cheese model

Reason *et al*., (2006) hypothesised that most accidents can be traced to one or more of four levels of failure namely: i) organisational influences, ii) unsafe supervision, iii) preconditions for unsafe acts, and iv) the unsafe acts themselves. Reason’s (1997) Swiss Cheese model of accident causation utilises a simple diagrammatic explanation of accidents causation with multiple holes in cheese slices that become aligned (as a catalogue of missing pieces in the chain of events) allowing adverse events to occur (Reason,1997). Barriers which are intended to act as defences against errors are represented by the solid slices. The system as a whole produces failure when individual weaknesses in the barriers become aligned permitting "a trajectory of accident opportunity", so that a hazard passes through all of the holes in all of the defences, leading to a failure or accident (Reason *et al.,* 2006).

Reason’s later (2006) model shows organisational accidents identified as being caused by both active and latent conditions. ‘Active failure’ is viewed

as mistakes or errors caused by people at the coalface, those actively involved in the event, resulting in an incident. However, these incidents frequently occur as a consequence of pre-existing conditions ('latent failure') which can include understaffing, lack of equipment, and inadequate safety measures, often the product of decisions, process and managerial controls. These make the preconditions available for a higher level of occurrence of systems failure and therefore higher levels of 'losses' (incidents or harms) (Reason *et al.,* 2006).

A criticism is that Reason's model leads to a linear approach to incident investigation with a tracing back of active errors to identify organisational failures without consideration of the complexity of the healthcare system as a whole (Carthey, 2013). Dekker *et al.,* (2011) highlighted that complex behaviours arise from interactions between components i.e., some 'holes' in Reason's model interact in a more complex way than mere alignment thus resulting in over-simplification and failure to acknowledge how components influence each other to create weakness in defences. The linearity of the model ignores the complexity of healthcare because it separates the top of the organisation from the 'coal-face'. Dekker *et al*., (2011) argue that analytic reduction cannot show how several different processes might act together when exposed to more than one influences at the same time. For example, low staffing levels and missed care episodes are early warning predictor of patient safety issues (Ball *et al.,* 2014). Patient mortality is adversely correlated with staffing levels, staff wellbeing, and intention to quit (Rafferty *et al.,* 2007) and with inadequate staffing levels and patient acuity (Needleman *et al.,* 2011, Needleman *et al., 2020*). Avoidable patient death is categorised as the worst level of patient harm (NHS National Reporting and Learning System, 2019).

Staples *et al.,* (2015) highlighted environmental issues as impacting on patient outcomes. Increased staffing levels coupled with nurse autonomy help reduce patient falls (a commonly occurring ward-based patient harm) (Lake *et al.,* 2010). The impact of nurse autonomy is, however, uncertain. Olsen (2010), based on a survey of 1919 hospital workers and 1806

petroleum industry workers, reported comparability across both sectors and advocated reducing worker discretion and autonomy to improve safety. Seshia *et al.,* (2017) attempted “gating the holes” by explaining how individual conscious and unconscious cognition and cognitive-affective biases can affect how the organisation, teams and individuals interact.

Vincent’s (1998) systems framework for analysing clinical incidents in healthcare built on Reason’s model using examples from incident analysis and healthcare literature and, with Taylor-Adams, “The London Protocol” (Taylor Adams *et al.,* 2004) uses ‘root cause analysis’ by identifying the causes of events thereby providing better understanding of contributing factors in both active and latent conditions to reduce future risks to patients. The framework considers environmental and contextual factors influencing clinical practice with a view to ensuring high reliability organisations.

3.2.2.2 Normal accident theory and High reliability theory

Normal accident theory (NAT) was developed by Charles Perrow from the analysis of a major disaster at a nuclear plant in the US in 1979. Perrow (1984) suggested that organisational factors contribute to the occurrence of catastrophic accidents some of which are inevitable. ‘Normal’ accidents occur when a failure in one component leads to an unavoidable incident, which would have been stoppable if observed (Perrow, 1984). NAT application is little evident in healthcare literature.

High reliability theory (HRT) (Cooke, 2009) was developed in direct opposition to Normal Accident Theory and claims, in contrast to normal accident theory, that it is possible to have organisations where catastrophes rarely if ever happen. In organisations with safety as a core value, emphasis shifts from reactive to proactive safety management (Hollnagel and Woods, 2008). It is this ideal state within an organisation that has inspired the NHS’s patient safety movement. HRT focuses on management approaches and organisational design principles that

improve quality and prevent patient injury (Riley *et al*., 2010). It's origins are traceable to a group of researchers (Laporte, Rochlin, and Roberts) at the University of California in the early 1980s and was based on the United States of America's air-traffic control systems, nuclear power stations and its navy's nuclear carriers, all of which could be viewed as a set of hazardous organisations which had a good, long-term safety record (Laporte *et al.,*1989).

High reliability theory provides an attractive framework for healthcare settings through the development of safety at both team and organisational level (Sutcliffe, 2011). Within high reliability theory lies the concept of safety as a 'collective mindfulness' (Hopkins, 2007) with the following characteristics:

- Preoccupation with failures rather than success looking for lapses and errors and well-developed systems for reporting near misses and process issues;
- Reluctance to simplify interpretations;
- Sensitivity to operations remaining live to situational awareness;
- Commitment to resilience;
- Deference to experience.

Highly-reliable organisations are seen to have strong hierarchical structures which emphasise protocols and procedures during critical operations. Multiple checks and observations by different individuals are required to ensure that dangerous conditions are detected rapidly and acted upon. In relation to safety, their hierarchy is flattened to allow staff of any level to intervene when dangerous situations are encountered. Training and simulation play an important element in maintaining safety. Reliability is achieved not just by standardization but by organisational resilience, its ability to adapt to challenges and alter its mode of operation to maintain safety as a primary goal. Resilience encompasses the capacity to bounce back from adversity, conflict or failure (Hollnagel *et al*., 2008), cope in stressful situations and is frequently perceived as one of the key

positive resources to deal with stressful and turbulent work environments (Avey *et al.,* 2009). At an organisational level, emphasis is placed on developing individual and team resilience to enable them to adapt, absorb variations and manage uncertainty, whether expected or not (Hollnagel and Woods, 2006).

Resilience engineering (Hollnagel and Woods, 2008) recognises that complex systems are dynamic in nature and that it is the ability of organisations, individuals and/or teams to adapt to changes that promotes safety. Thus, it has become a paradigm for safety management that focuses on how to help people cope with complexity under pressure by developing the ability to 1) respond to various disturbances and to regular and irregular threats 2) flexibly monitor what is going on, 3) anticipate disruptions and 4) learn from experience (Hollnagel and Woods, 2008). Woods (2006) further identifies two types of adaptive capacity in organisations. First-order adaptive capacity is displayed when organisations respond using existing capabilities as a result of predetermined plans. In contrast, second-order adaptive capacity emerges when organisations develop new capabilities to respond dynamically to differing situations (Woods, 2006). The Covid-19 pandemic has meant healthcare organisations have had to rapidly upskill staff, expand intensive care beds and shift face-to-face consultations online (Cole *et al*., 2020). Another example of second-order adaptive capacity was the rapid design and implementation of a pilot study which adapted a resilience development intervention in order to focus on healthcare leaders dealing with the Covid-19 pandemic in Bergano, the area of Italy with the most Covid cases at the time, to help them perform under conditions of great risk and uncertainty during which they were not able to employ more usual stress-mitigating strategies such as time off work (Giordano *et al*., 2022). Evaluation of the pilot indicated that it helped staff cope and adapt to situations (Giordano *et al*., 2022).

However, staff working in dynamic situations may violate rules. Amalberti's *et al.,* (2006) model of system migration and transgressions in practice

was developed by researching safety management and the psychology of rule violation. When staff cut corners, they may violate rules despite not intending to cause errors (Laschinger and Leiter, 2006). The theory suggests that deviations from the rules can become normalised and routine among a social group and migration into less safe healthcare practices can occur over time (Amalberti *et al.,* 2006). This model has found some favour as a way of explaining how drifting into error can occur in clinical areas however, it has been criticised on the grounds that it is "unreasonable to demand that human beings remain constantly uneasy about impending disaster" (Dyer and Scagnoli, 2020, p.3).

3.2.3 Summarising explanations for patient harm incidents

There is no simple or definitive explanation for why patient harm occurs. Hospital settings have greater complexity than many other organisations because they are people-processing rather than people-transporting (aviation) or extractive (oil) however there is some commonality in that people and systems play a part in co-creating and sustaining workplace cultures (Zwetsloot, 2017).

3.3 Open Systems Theory

3.3.1 Systems Theory

Organisations are "purposeful systems characterised by co-ordinated action towards an objective" (Thompson and McHugh, 2002, p6). Organisational theory provides an understanding of organisational design, relationships, and function which all relate to the realisation of goals. An organisation's success is reflected in how inputs are shaped via policies, strategies and actions into desired outputs (the goals) (Thompson and McHugh, 2002). Systems Theory allows both internal and external variables to be studied in analysing the nature of organisations, and their interrelated parts (Thompson and McHugh, 2002).

In the early days of the development of organisational theories, organisations were viewed as being closed systems with clear boundaries concerned only by internal variables in the service of goal attainment (Thompson and McHugh, 2002). By the 1960s, Modern Organisational Theory had become the dominant theory replacing both Classical Organisational Theory which focused on viewing organisations as machines and human beings as components, and Neo-Classical Organisational Theory which focused more on the physiology and mechanical variables of organisational functioning (Thompson and McHugh, 2002). Viewing organisations as 'systems' provided opportunities to look at them in a more meaningful way as either closed or open systems. Traditional theories regarding organisations focused on closed systems that were considered autonomous and isolated from external influences (Brett, 2016). However, when an organisation is seen as a closed system, influences from the external environment are viewed as negligible so the greatest influence upon the realisation of organisational goals comes from individuals within who "may have goals contrary to senior management" and "furthermore, sub-units of the organisation develop a life of their own" (Thompson and McHugh, 2002, p.8). Systems theory provides a framework to explain relationships between concepts and components or relationships within systems that are made up of several interacting parts and how all of these parts affect functioning within an organisation (Kuhn, 1974; von Bertalanffy, 1972). Complex adaptive systems theory arguably has value for understanding complex healthcare systems but The Health Foundation (2010, p.9) considered it was only appropriate for organisations who "do not have a hierarchy of command" (unlike typical NHS organisations).

Many organisations operate within wider social, economic, philosophical, or political contexts and constraints and, as such, "mediate between the wider society and the individual" (Thompson and McHugh, 2002, p.5). The Francis Report (2013, see Chapter 1, s.1.1.5.1) noted how "From national, regional and local levels, pressure was continually exerted to balance the books." Open systems approach draw attention to the links between the

internal parts of a system, and links to the whole system and the outside world as identified by the system boundary.

3.3.2 Open Systems Theory

The failure of traditional organisational theories to take account of environmental influences and their impact on social systems has led to the embracing of an open-systems' view of organisations as an explanatory theory. OST derives from organisational theory and was initially developed in the 1960s to describe organisms in biology (von Bertalanffy, 1972). Its application spread in the 1970s across other disciplines, including industry, social sciences and healthcare, in response to the criticisms that were becoming apparent with traditional organisational theories. Katz and Kahn (1978) applied OST to large organisations viewing them as having an energetic 'input - throughput - output system'. An organisation is dependent on its supporting environment for continued inputs to ensure its sustainability and then process these inputs (through transformative activities and interactions of individuals) to yield outputs, and as a result, the organisation acts as a social system. All systems except, arguably, the military perform transformation processes (Shrivastava *et al*., 2009). Katz and Kahn (1978) argue that the organisation and its subsystems strive to achieve a dynamic steady state, where any irregularities in the flow of inputs can be adjusted to, in order to maintain the characteristics of the system, thus the subsystems are continually adapting to changes in inputs and with their environment.

Open Systems' view of management is that it depends on external environments and its resources to thrive and prosper (Boddy, 2008). Across this boundary, the system imports resources and energy and materials which then undergo a transformation process within the system and then leave the system as either goods or services. In the U.K, the primary provision of healthcare is through a nationwide system, the National Health Service, which therefore is part of the wider environment

within which NHS Trusts operate. The model below (Figure 3.1) is Boddy's (2008) representation of an open system organisation.

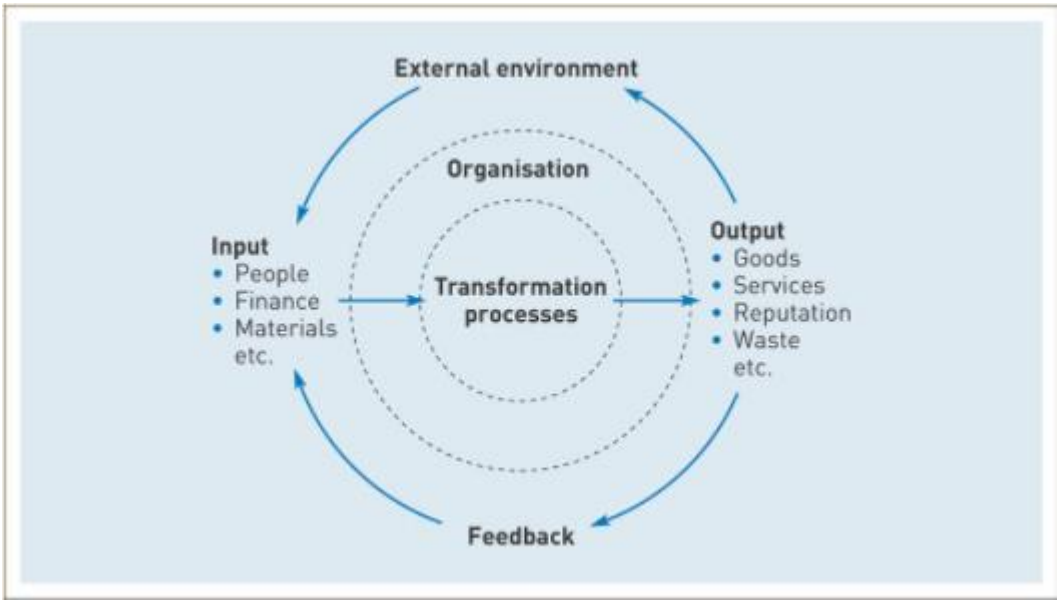


Figure 3.1 Boddy's (2008) representation of Open Systems Theory Model

Boddy (2008) identifies the input and output process, transformative and feedback loops. In order to continue to receive resources (for example, finance and workforce) as inputs, that can then be used to transform other inputs (materials or, in healthcare, patients) into the desired outputs (products, or discharged patients), the organisation needs to continue to satisfy the scrutineers in the wider environment as to how well it is meeting its goals of successful transformation. The feedback loops are important as they provide the information in relation to the performance of the system. OST views organisations as recognising the need to adapt to their surrounding environment and being adaptive requires looking at organisational behaviour and performance (Katz and Kahn, 1978). Consequently, systems thinking is a way of identifying how things work and involves examining not just events but the relationships and interactions that explain behaviour to help solve problems (Chuang and Howley, 2019).

Boddy's (2008) model has a dotted line around the organisation to suggest the porous nature of the boundary. Thompson and McHugh (2002) explain that the organisational boundary can placed between the organisation and its environment, or, if the focus is on work groups (units within the organisation), the boundary lies between the unit/group and the rest of the organisation. Most research, according to Thompson and McHugh (2002, p.57) treats the organisation as the system and the wider environment is ignored even though a "central concept of open systems is that of uncertainty and related terms: stability, turbulence or indeterminacy". The complexity of organisations in the form of diversity of activities and internal environments makes collecting and monitoring data on performance challenging (Thompson and McHugh, 2002). Another factor affecting organisation performance is "dependency" which affects the ability of organisational sub-units (for example, wards) to cope with the uncertainty that the external environment is "a source of scarce resources that have to be competed for" (Thompson and McHugh, 2002, p.57). An example would be competing for staff against competitor organisations. In healthcare, the external environment affects organisation's ability to predict how many patients they may be required to care for (Harwich *et al*., 2021). Consequently, decision-making by management (macro level) reflects environmental uncertainty and dependency and, to address unevenness in internal environmental conditions such as technology and information, as well as accommodate for internal power relations between sub-units, management frequently form "dominant coalitions" (Thompson and McHugh, 2002, p.58).

Mark *et al.,* (1996) proposed an OST-derived theory, Contingency Theory, which considers that organisations are structured in ways that best fit the environment in which they are embedded, on the grounds that fragmented knowledge has arisen from nursing research that has tended to focus on examining relationships between selected structural characteristics and outcomes without considering organisational context; likewise, health service research has focussed on relationships between organisation context and nursing service outcomes. Contingency Theory is little

employed by researchers because it is seen as overly complex, and any contingency can be seen as ‘key’ to business performance (Thompson and McHugh, 2002).

3.3.3 Healthcare organisations as Open Systems

Healthcare organisations, including acute hospitals, are constituted of numerous departments, individual wards, different professional groups, managerial structures and numerous processes and governance systems that enable the day-to-day activities of the systems and its goals to be achieved. In the NHS, acute hospital goals link not just to treating patients but delivering financial sustainability and making externally monitored performance improvements (Hyde *et al.,* 2016). Systems theory has long been applied in healthcare to the analysis of adverse incidents to help understand failures that occur between individual departments and people (Chuang and Inder, 2009). The first principle is that “patient safety and quality of healthcare is an emergent property of the entire healthcare system” not just individual organisational hierarchy or individual system components (Chuang and Inder, 2009, p.2). Second, healthcare organisations are “open and dynamic complex system(s)” with a “suite of interrelated subsystems that are kept in a state of dynamic equilibrium by feedback loops of information and control” (Chuang and Inder, 2009, p.3).

Meyer and O’Brien-Pallas (2010) argued that healthcare organisations should be conceptualised as open systems composed of interacting subsystems that selectively import and transform energy inputs from external environment to produce services and products. Martínez-Garcia and Hermȧndez-Lemus, (2013, p.122) used OST to explain how complex systems like healthcare systems operate as “complex adaptive systems” with inputs coming from multiple external inputs, all having a synergic impact which creates three types of problems, “overuse, underuse, misuse” and furthermore, these should not be treated separately by management but “recognised as a single synergistic source of conflict”. Martínez-Garcia and Hermȧndez-Lemus (2013) argue that OST can be

applied to improve organisational performance by building recognition that healthcare organisations are complex open systems into their design and improving communication networks to provide feedback loops that enable re-engineering to facilitate system optimisation.

Hospitals, like many other complex organisations and safety orientated industries, are considered to be high-risk environments (Hudson, 2003; Ancarani *et al.,* 2017) with many staff performing important (isolated) tasks in relation to safe, effective patient care, which adds to the complexity of providing care and involves a high degree of human and system interaction (Mohr and Batalden, 2002). Likewise, Martínez-Garcia and Hermȧndez-Lemus, (2013) argue that, increasingly, healthcare environments are becoming more complex and consequently more complex behaviours emerge from the interaction between more constituents and levels in these systems. Gualandi *et al.* (2020) examined hospital patient flow and identified how each part (or unit) of the system that the patient encounters (from outpatients to admission to surgery to rehabilitation to discharge), each professional group, technical and administrative services, and whether someone is working at the frontline, meso management or macro management affected their focus and consequently their interactions and behaviours.

In OST, the hierarchical structure of organisations is recognised where each level of the organisation comprises a subsystem of interrelated parts and these are responsible for the outputs. In large organisations, work processes and roles are integrated across subsystems and are considered as dynamic in nature. Management, as part of the subsystem, is required to integrate and coordinate how these subsystems function, in order to adapt to both external environment and internal conflicts at the same time, plus develop capacity to maintain the organisation's core functions (Katz and Kahn, 1978).

Organisational culture, structures and systems, coupled with beliefs about what should be prioritised and how to manage the everyday challenges of healthcare delivery, influence behaviours and are of immense importance

for reducing harm as the Umbrella review (Chapter 2) revealed. Healthcare organisations, particularly those within the NHS, are characterised by a pace of change (Hyde *et al.,* 2016). Change is not just in terms of input, such as an increased demand for services (particularly in the winter periods and exacerbated during the Covid-19 pandemic) but also in the number of changes being imposed from Department of Health policies (Hyde *et al.,* 2016), and new international and national patient safety strategies (discussed in Chapter 1, s.1.3). These can lead to changes in terms of alterations of healthcare targets, for example, the length of time expected for a person receiving care, from their arrival at the hospital to how long it takes to get access to a hospital bed as a full admission (Marjanovic et al., 2020). Alterations to the local housing market or even a change to public transport routes can affect a hospital's staff recruitment or the availability of new labour (Palmer et al., 2019). These external influences, as well as the internal influences that derive simply by virtue of being a large, multi-professional, hierarchical organisation, are embraced within OST which provides a framework for understanding how organisations operate, what goals they value, how they prioritise those goals and the actions they take.

Shrivastava *et al*., (2009) have argued that an OST perspective should be applied to accidents and that this would reconcile Normal Accident Theory (NAT) and High Reliability Theory (HRT). To prevent accidents or harms, they suggest, "HRT looks for organizational factors and processes that contribute to reliability, and NAT focuses on organizational properties that lead to accidents" (Shrivastava *et al*., 2009, p.1365). Individuals and teams with high self-efficacy (characteristics of HRT) are more likely to speak openly to fellow workers and their managers about safety issues and areas of concern (Avey *et al.,* 2009). Greater goal orientation and positivity leads to a reinforcement of safety awareness and in turn impacts on overall performance, towards improved patient outcomes (Avey *et al.,* 2009). Finally, highly resilient workers are committed to positive work-related outcomes, and this leads to a greater level of safety-focused behaviour (Hystad *et al*., 2013). However, as recognised within Reason's

Swiss Cheese model (discussed in s.3.2.2.1), organisations can start to "drift" towards an accident when management "start ignoring and misunderstanding danger signals" and this is as true of high reliability organisations as any others (Shrivastava *et al*., 2009, p.1371).

3.3.4 Healthcare research using Open Systems Theory

3.3.4.1 Systems approaches to investigating how patient safety is created

In relation to patient safety, McNab *et al.,* (2020) argued that investigative approaches in the past have mainly focused on single elements e.g., people or items, rather than attempting to understand interacting relationships and dependencies between people and other elements within a sociotechnical system. In healthcare, as in other safety critical industries, exploring how safety is created in complex systems can add to existing knowledge. This conforms with current thinking in relation to how safety is now viewed within healthcare. Hollnagel *et al.'s* (2015) White Paper *From Safety-I to Safety-II*, argued for a shift from a primary focus on examining accidents and looking to try and prevent these from occurring as perceived in their 'Safety-I' concept, to building on this to Safety-II, where the emphasis is on ensuring that as much as possible goes right rather than what goes wrong as well as emphasising accident prevention and promoting of safety management over simple risk assessment (Hollnagel *et al.,* 2015).

As healthcare systems continue to develop and become more complex, people within them need to adjust what they do to match the conditions of work (Hollnageal *et al.,* 2015). Within the NHS, several mergers of acute Trusts have occurred (NHS Digital, 2021). Whilst financial benefits can accrue from mergers, most have involved Trusts failing on finances, quality and patient safety being taken over by better-performing organisations (NHS Improvement, 2017). During periods of fast organisational growth, the risk of accidents increases (Shrivastava *et al.,* (2009). McNab *et al*., (2020) suggest that most healthcare problems and

solutions belong to the system therefore utilising a system approach allows for improvements in overall system functioning rather than just one component. However, taking over, or merging with, other organisations is likely to create even more complexity (Mohr and Batalden, 2002) and silos (Goh *et al*., 2013).

Researchers need to focus more on learning how people create safety by adapting to unplanned system factors and interactions as suggested in the Safety II system approach of Hollnageal *et al.,* (2015). Accordingly, Ramsay *et al.,* (2010) examined the relationship between healthcare governance and patient safety in association with two patient safety issues (healthcare-associated infections and medication errors) in one acute NHS Foundation Trust. They identified that a relationship exists between external governance and formal internal governance systems and how these are subsequently enacted is dependent upon director-level or professional-level engagement. Ramsay *et al.,* (2010) argued that the degree of external regulation effect/impact on internal governance cannot currently be attributed however where benchmark targets exist these provide an opportunity to measure Trust performance.

3.3.4.2 Healthcare research employing Open Systems Theory

In support of using OST, Tredinnick-Moir (2013) argued that it allows an organisation to be viewed like a living system interacting with its environment constantly interchanging. Few studies were identified that employed OST within healthcare organisations and generally examined only one element within Katz and Kahn's (1966) framework. No study was identified that attempted to apply an OST lens more broadly. Most were based in very different healthcare systems from the NHS thereby limiting transferability.

An example of a study focusing on the process aspect of the input-process-outcome part of Katz and Khan's (1966) framework was Tredinnick-Moir's (2013) research into emergency nurses' and paramedics' experiences of patient transfers. The process was conceptualised as the interaction between the paramedics and nurses

during the transfer of patients' care with the outputs identified as patient outcomes, provider attitudes or over-use of hospital resources. The Ontario healthcare system differs significantly from the UK. Emergency health services are delivered under Provincial Programmes and Stewardship whereas Local Health Integration Networks are responsible for hospitals, home and community care, long-term residential homes and community support agencies (Ontario Ministry of Health and Long-Term Care, nd).

A study using OST in relation to external inputs (Katz and Khan, 1966) focused on hospital accreditation in five countries (USA, Canada, Australia, Taiwan and France) to explore how different external systems influence healthcare organisations (Chuang *et al.,* 2019). The NHS does not employ hospital accreditation as such although it does have the CQC to provide scrutiny and local accreditation as part of the Chief Nursing Officer's governance and leadership programme (NHS England, 2021).

An example of an OST-based study that examined influences upon macro-level business decisions was Aldridge's (2020) doctoral research. Aldridge's correlational study examined the relationships between determinants of health and the provision at Adult Day Services Centres (ADSCs) across America of therapeutic services and nursing services to meet the complex needs of older people. In Aldridge's study, the system was conceptualised as the ADSCs. Unlike acute Trusts in the UK, ASDCs' funding is independent of any national/federal system, giving them greater freedom to restrict services or patient admissions.

At unit (ward) level, one study employed an OST-derived theory, Nurses Services Delivery Theory (NSDT) to examine patient and nurse structures in one department in one American hospital as it moved from a centralised nursing layout to a decentralised design (Real *et al.,* 2018). NDST had been proposed by Meyer and O'Brien-Pallas (2010) but gained minimal traction despite purporting to provide a theoretical understanding of the nature of nursing work and how it is delivered "by nurses clustered in work

groups…nested in a department…within the larger organization" (Meyer and O'Brien-Pallas, 2010, p.2832). The U.S. healthcare system is very different from the UK (Wendt *et al.,* 2009) and Real ***et al.'s*** (2018) study focused on ward-level care not the wider organisation or influences.

3.3.5 Adoption of Open Systems Theory in this study

The examination of OST in this chapter led to the third guiding proposition for this thesis that**:**

> Employing Open Systems Theory as the underpinning of a case study within an Acute NHS Trust will help provide a more nuanced understanding of patient safety culture and how aspects of the system contribute to perceptions, understandings and behaviours related to patient safety.

3.4 Figure showing Patient Safety Culture as viewed through an OST lens

The proposition just stated and the two identified previously (Chapter 2, s.2.7, p.65) informed the design of a representative figure. This figure presents how a typical NHS Acute Trust can be perceived as an open system. This understanding is reflected in the research question and study objectives (presented in s.3.5).

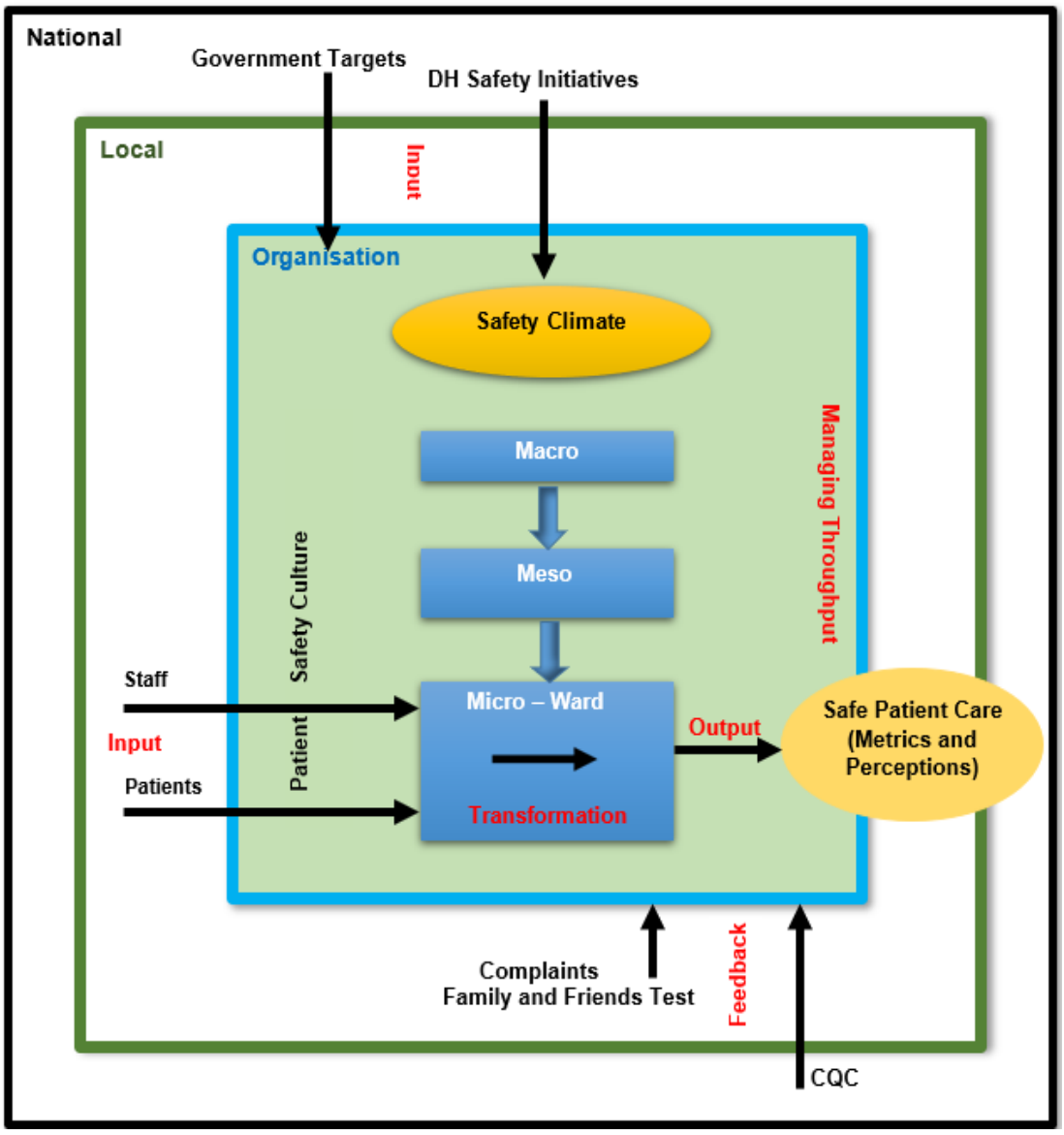


Figure 3.2 Patient safety culture as viewed through an Open System Theory lens

Figure 3.2 aims to represent OST influences on patient safety culture within an Acute NHS Trust organisation. The arrows provide an indication of the direction of input, throughput, and output and how these impact on the different levels within a typical Acute NHS Trust organisation with surrounding systems represented by a series of concentric squares.

The squares depict the boundaries between the organisation (blue square), it's local community environment (green square) and the national healthcare environment (Black square). External national influences identified as 'inputs' in the form of government targets and national safety

initiatives (as depicted in the outer black square) impact directly on the organisation (an Acute Trust in this study). Local demographics and local economy (workforce availability) are 'inputs' from the middle green square that impact on local patient needs, and the organisation's ability to recruit and retain staff. Feedback comes from external agencies such as the Care Quality Commission which provides external reviews of safety and from the local environment served by the organisation which is provided through surveys such as Friends and Family tests and complaints.

The inner blue square with green infill depicts the organisation itself and how patient safety culture is expected to percolate across all levels of the organisation thereby shaping attitudes, beliefs, values, skills and practices of all staff. The overarching safety climate, depicted in yellow, is an indicator of how safety is perceived at all levels of an organisation (micro, meso, macro) and is a measurable indicator of how an organisation is performing over time. The hierarchical structure is depicted in a series of levels: macro (organisational executive) at the top, meso (middle management) then micro (ward) at the bottom. The size of box at each level broadly reflects the proportion of staff. Throughput management (transformative of patients at ward level) reflects how the organisation utilises resources, strategies, policies and systems in relation to the provision of safe care. Outputs are the outcomes of in-patient transformation at ward level which are depicted as safe patient care (measurable via the organisation's safety metrics data) and perceptions of patient safety culture.

3.5 Study aim, research question and study objectives

3.5.1 Research question

How is patient safety culture perceived and influenced within an Acute NHS Trust?

3.5.2 Study aim

To understand the perceptions of, and influences on, the patient safety culture within an acute Trust in England.

3.5.3 Study objectives

The following associated research objectives were identified by reference to the literature examined in Chapters 1 and 2 and Figure 3.2:

1. To conduct a case study with embedded units of analysis (two medical wards) examining staff views at macro, meso and micro level on the organisation's patient safety culture

2. To explore perceptions and influences relating to patient safety culture through analysis of documentation relating to the organisation and safety metrics relating to the two medical wards.

3. To use Open Systems Theory to analyse environmental and contextual influences on the patient safety culture.

3.6 Conclusion

This chapter explained and justified the adoption of Open Systems Theory for underpinning this study and presented a figure that synthesises the critical insights and propositions derived from this and the preceding two chapters. The following chapter explains the epistemological and methodological underpinning of this study and how an exploratory case study was conducted within an Acute NHS organisation. Through this exploration, it is hoped to add to a deeper understanding of how patient safety culture is perceived, influenced, and experienced within the NHS. Exploring one organisation in-depth through case study facilitates a "deeper look at how people actually behave-as opposed to how they say the behave" (Bessant and Stamm, 2007, p.18). Case study research aims to understand the "everyday life of real people" as well as the "context

within which they operate” (Bessant and Stamm, 2007, p.18) thereby allowing new insights to emerge.

Chapter 4: Epistemology, Methodology and Methods

4.1 Introduction

This chapter starts by explaining the epistemological underpinning of this study, then outlines the decision-making processes and underlying rationale for the case study approach and finally describes the methods employed for data collection and data analysis.

4.2 Epistemological Perspective

Epistemology is concerned with providing a philosophical grounding for identifying what kinds of knowledge are possible, and as a result informs the researcher's theoretical stance and approach (Carter and Little, 2007). Having an understanding of one's own ontology (i.e., world view, or nature of reality: Creswell and Plano Clark, 2018) and epistemology is pivotal to understanding the decision-making process undertaken by a researcher, towards their choice of research design and methods (Crotty, 1998). However, ontology is omitted by Crotty (1998) in favour of epistemology, as reflecting the researcher's perspective of meaningful reality which is how knowledge of what we know is achieved (Creswell and Plano Clark, 2018). When considering the most appropriate methodological approach for any study, it is important that the chosen approach can answer the research question and the researcher must recognise that often there is no single view that will give access to the entire picture, and that there are multiple realties that can exist at any one time (Guba and Lincoln, 1994).

There are two main epistemological approaches utilised in research. These are i) constructivism, which relates more to a qualitative research paradigm and ii) objectivism which relates most to a quantitative paradigm. Constructivists believe there is no single reality or truth which enables the researcher to explore the views and understanding of different participants within the subject context and allows for different understandings by participants of the same situation to be revealed (Crotty, 1998). Social

constructivism was considered as a potential approach for this study as this seeks to understand the world in which people interact and work. It draws on the subjectivity of the individual's experience thereby allowing the researcher to look at the complexity of views rather than narrowing down to a few categories (Creswell, 2014). However, within this study, the aim was to interpret the perspectives others have about their (Acute NHS Trust) world with the view of gaining insights whilst respecting the fact that knowledge may vary between participants and may also be affected by their different experiences and the variety of roles within an organisation. Crotty (1998) argues that social constructivists acknowledge there is no single objective truth, and that each person constructs their own knowledge, based on their experiences and engagements. However, there was a need for an approach that would also allow a more concrete, objective understanding of the ward safety record and the external influences, such as staffing levels or wider organisational goals that could affect their ability to protect patients from harm to be captured.

Crotty (1998, p.8) explains, objectivists (or positivists*) "hold that meaning and therefore meaningful reality exists as such, apart from the operation of any consciousness".* Whenever 'culture' is being explored, the researcher must necessarily recognise that different understandings will exist and these hold potential to shape systems, processes, behaviours, and actions which together may positively or negatively impact upon organisational outputs that are measurable in an objective, concrete, positivist manner. Professional activity is rooted in clinical practice with a scientific and cultural approach that is applied locally, being both context and time dependant (Chinn and Kramer, 2013). Knowledge and inquiry are social, and beliefs develop over generations which guide practice hence maintaining and updating knowledge is a collective exercise (Ormerod, 2006).

Reflecting that my knowledge and beliefs could potentially introduce bias (Tversky and Kahneman, 1974), I recognised that as an experienced senior nurse who has worked within a fast-moving clinical environment, I

frequently encountered complex situations that required multiple approaches, and often the use of heuristic shortcuts, to solve issues and, as such, no single approach could be applied to every situation, no matter how similar to previous ones. Reflective practice is often seen as an essential element of the nursing culture (Esterhuizen and Howatson-Jones, 2019; Johns, 2017). Therefore, I know that revisiting situations and decisions when the heat of the moment has passed allows insights to emerge that could otherwise be lost. It has been suggested by Carr (2009) that the use of research paradigms which reflect this complexity and offer new insights to influence nursing practice is essential. In the present case, adopting a framework combining Open Systems Theory with case study methodology resonated with my reflective practitioner approach and would provide for exploration of a topic close to my heart.

Open Systems Theory recognises how different understandings, including those relating to goal priorities, impact upon how decisions are made and actions that may threaten or support patient safety are determined upon. Therefore, the methodological approach could never align solely with either the constructivist or the objectivist world view. It is important for researchers to utilise methods that are appropriate to the design and that best meet their needs and purposes (Creswell, 2014; Tashakkori and Teddie, 2010). It became clear that to understand the influences upon patient safety culture, it would be necessary to collect some quantitative data to provide an objective perspective as well as to collect qualitative data that would provide the subjective perspectives of, and perceived influences on, patient safety culture in order to answer the research question and that it would be necessary to interpret the wider influences external and internal to the organisation.

4.3. Methodology

Understanding what influences patient safety culture in an organisation using Open Systems Theory requires an understanding of its leadership, teamwork, and openness to learning as identified by existing studies.

Consideration was therefore given as to whether a mixed methods study of qualitative data from staff describing their perceptions of the organisation and its patient safety culture together with quantitative data from safety metrics would provide the required insight. Case studies are mixed methods studies where “quantitative and qualitative data collection, results and integration are used to provide in depth evidence for case(s)” (Creswell and Plano Clark 2018, p.116). Mixed methods studies and case studies are not therefore separate entities but the quantitative and qualitative data that inform the case study provide multiple perspectives of the complexity and uniqueness of the phenomenon in real life context (Guetterman and Fetters (2018).

In selecting the methodology, it is important to clarify whether the research aims to uncover the meaning of lived experience (phenomenology), a description of culture (ethnography), insight into what is actually occurring and how is it be being experienced (case study), or to develop new theory (grounded theory) (McCaslin and Scott, 2003). The aim of this study was not to create theory. Phenomenology was considered as it would have given the personal subjective experience of individuals and their lived experience (Burns and Grove 2006), but this approach would not explain the differences between these experiences and was rejected in favour of case study as that provided a more in-depth and detailed investigation participants’ experiences and the context over a period of time and would better answer the research question. Case studies and ethnographic studies both emphasise context (Houghton *et al*., 2013) but the latter was rejected because the underpinning theoretical framework of Open Systems Theory would demand time and resources beyond those of a sole researcher as well as access to more than one organisation.

4.3.1 The Case Study

A case study focus is on understanding “how” within the context of the phenomenon (in this case, how patient safety culture is perceived and influenced) under study, and the boundaries, or relationship between the phenomenon and the context (in this case, a hierarchical healthcare

organisation with its own characteristics and influencing dynamics as understood via Open Systems Theory and potentially differing cultures - organisational, professional and team) are unclear (Yin, 2014).

Harrison et al (2017) explain that case study can lead to an 'in-depth' understanding of behaviours, processes, practices, and relationships in context. Exploring organisational patient safety culture needs to be done within an organisation, meaning the organisation is the 'case'. Three well-known exponents of case study methodology are Yin (1984, 2014, 2018), Stake (1995) and Merriam (1998). An historical overview of case study research and associated epistemologies identifies roots dating back to the 1600s (Harrison *et al.*, 2017). Epistemological differences exist in relation to both methodologist's perspectives of the nature and production of knowledge and in their approach to inquiry. Stake's perspective, like Merriam's (1998) on case study appears to be based on constructivism, indicating that knowledge is socially constructed rather than discovered. His contention is that there are *"multiple perspectives or views of the case that need to be represented, but there is no way to establish, beyond contention the best view"* (Stake, 1995, p.108).

In contrast, Yin's approach arguably leans more towards a post-positivist (Harrison *et al.*, 2017; Onghena *et al*., 2019) tradition, as he seeks to promote conditions related to design, namely internal and external validity, and reliability; with these guiding each element of the research design, since, as Harrison *et al.*, (2017, p. 9) note, *"postpositivists accept that everyone is inherently biased in worldviews"*. In contrast, others argue that Yin is simply a methodologist and should be understood as such (Bhatta, 2018). Additionally, as Berkovich (2018, p.2066) identifies, binary distinctions between quantitative and qualitative, positivist and interpretivist positions are overly simplistic and there is increasing recognition of positivist qualitative research *"which is a type of scientific exploration that combines qualitative methods with positivist elements".* Viewing Yin as a case study methodologist (Bhatta, 2018), with positivist elements afforded by the structured approach advocated by Yin, whilst still

giving primacy to qualitative data (Berkovich, 2018) was determined to provide the best fit for this present study.
According to Yin (2014) case study:

> *"is an empirical inquiry that investigates a contemporary phenomenon in-depth and within its real-world context, especially when the boundaries between the phenomenon and context may not be clearly evident"* (Yin, 2014, p.16).

Yin's (2014) case study approach allows the researcher to focus on 'the case' while retaining a holistic, meaningful feature of actual events. According to Yin (2014), case study embraces the complexity of multiple variables and potentially uses a wide range of methods and sources of evidence in order to shed light on the phenomenon being investigated. He identifies six sources of evidence namely: *documentation, archival records, interviews, direct observation, participant observation*, and *physical artifacts* and suggests that a good case study will want to rely on as many sources as possible, to increase validity with an emphasis on a more structured design. In this case it was identified at the outset that observations of staff at work needed to be rejected because of the impact of the researcher on staff practices (the Hawthorne effect: Payne and Payne, 2004) and potentially introducing researcher bias. Likewise, archival records would be limited in their ability to answer the research objective as safety culture and safety climate are time-sensitive and the contextual knowledge of people currently involved is a necessity (Hebballi *et al*., 2015).

Stake's (1995) approach, in contrast, is more flexible with an ability to make changes to the design dependent on issues and the case, however his approach is less suited to studying *"events and processes"* (Yazan, 2015 p.139) and risks the researcher losing objectivity. The qualitative nature of Stake's case study methodology was less fitted to research that aimed to conduct an Open System Theory exploration that necessitated collecting quantitative data relating to inputs and outputs. Merriam's (1998)

case study methodology was also considered as it provides a more structured approach than Stake but, as Yazan comments, neither Merriam nor Stake *"consider the quantitative data sources legitimate ways of gleaning data"* (Yazan, 2015, p.144).

Utilising case study methodology provided the ability to examine patient safety within the context of an organisation where the boundaries between safety and culture are not evident. Utilising one Acute NHS Trust provided the opportunity to explore in-depth how patient safety was affected by culture at each critical level; that is, from ward (micro) level to middle-management level (meso), through to organisational level (macro) a gap already identified within the literature. No two Trusts are identical; each will have its own identity, culture and influences such local population, clinical expertise, and motivators like Care Quality Commission inspection reports.

Case studies provide an opportunity to 'dig deep', drilling down and exploring different aspects from various directions, whilst not seeking to over-generalise (Thomas, 2011). Case study, in particular Yin's approach, has been utilised in other doctoral studies including Chaffer's (2020) exploration of the concept of a 'well led' hospital, Murray's (2013) case study into organisational resilience in UK hospitals, and Sanderson (2016) on the impact of incentives for competition and co-operation on the behaviour of healthcare organisations. Chaffer (2020), Murray (2013) and Sanderson (2016) conducted qualitative case studies citing Yin as their guiding methodologist but gave little further detail. This aligns with Massaro et al.'s (2019) systematic review of Yin case studies which found that most merely cited Yin once as a "methodological shortcut".

Most case studies are exploratory in nature. Ogawa and Malin (1991, p.271) explain that the *"primary purpose of an exploratory case study is to extend our understanding of complex social phenomena".* They further explain that exploratory case studies have distinctive features including that they "grapple with complex phenomena in real life contexts", accept that researcher control can be reduced because of the complex and

contemporary nature of the case, use multiple data sources with a heavy reliance on qualitative data and aim to provide *"a cogent, detailed portrait of the phenomenon - the attributes it assumes, the variations it displays, the ways it appears to operate, and the combinations of factors that seem to shape the patterns observed"* (Ogawa and Malin, 1991, p.274). Ridder (2017, pp.283-4) argues that *"the essence of a case study lies in the careful study of a single case to identify new relationships"* however, most have a *"lack of clarity of the theoretical purpose".* Ridder (2017, p.291) explains that *"existing theory contains research gaps which, once identified within the existing theory, lead accordingly to assumed relationships which are the basis for framework and propositions to be matched by empirical data."* The Umbrella review (Chapter 2) revealed gaps in knowledge and, with Chapter 3, led to the formulation of the study aim, question, and objectives.

The exploratory nature aligns with Yin's (2014) perspective of case study, which emphasises the need to develop a study design that addresses internal and external validity. These criteria are important in order that when comparing and contrasting the perspectives gained through the qualitative interviews, the data for the two wards included in the study and other data sources, and then considering areas of convergence or divergence between data sources, the deeper and more nuanced understanding of patient safety culture within the host organisation is as representative and anchored in truth as possible (Tversky and Kahneman, 1974). Yin's (2014) case study criteria include identifying at the outset a protocol for conducting the study, which provides an opportunity for external validity prior to implementation. Yin (2018, p.28) suggests that stating propositions *"begins to tell you where to look for evidence".* A proposition *"represents the views" that are presently understood by all parties and "can be negations of each other"* where there is contestable evidence (Taylor *et al.*, 2020, pp.5-6) such as that identified in Chapter 3.

Yin (2003, p.46) has described four types of case study designs (Figure 4.1 below). Type 1 – is identified as a single holistic case study with one

unit of analysis; Type 2 - a single case with multiple units of analysis (embedded); Type 3 - multiple cases with single units; Type 4 - multiple cases with multiple units of embedded analysis. Figure 4.1 below represents the four types:

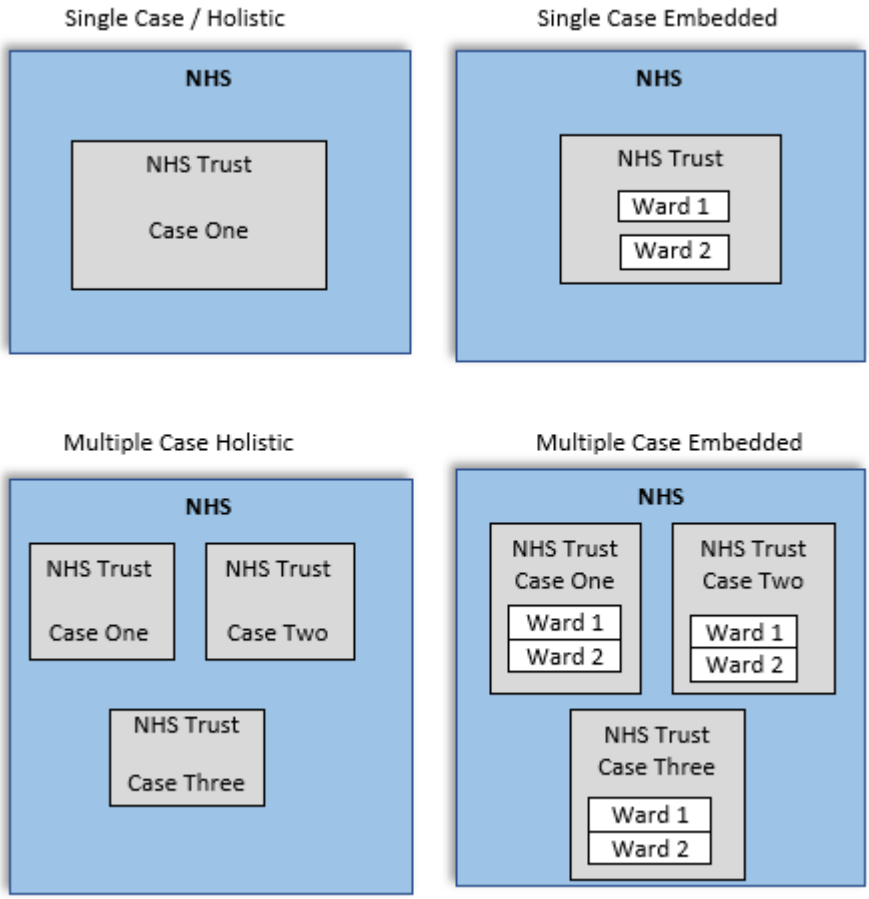


Figure 4.1 Modification of Yin's (2003) Four case study typologies

Yin (2003) argues that before any data collection can commence a decision must be made about utilising a single or multiple case design.

4.3.2 Selection of the case

Careful consideration has to be paid to selecting the right sample and it was important to identify a suitable host site which would provide potential for meeting *"goals of generalizability of research findings and in-depth understanding of the research context"* (Sharp *et al.,* 2012, p.34). Although the primary aim of case study research is not to produce generalisable findings, in order to gain a more nuanced understanding of patient safety culture, it was important to find an Acute NHS Trust that would be

"representative" enough (Sharp *et al.,* 2012, p.34) that readers of this study could recognise shared characteristics with other Acute Trusts. A case study site is suitable if it provides the *"objects of reasoning, circumstances and core problems"* add *"recognition of emerging patterns"* needed to answer the research question (Diefenbach, 2009, p.87). As Sharp *et al.,* (2012, p.38) identify, there is *"little guidance"* on how to select study sites and frequently *"convenience sampling"* i.e., the selection of sites that offer *"easy access*" forms the sampling strategy. Sampling criteria that Sharp *et al.,* (2012, p.39) recommend as adding rigour include identifying a sample that provides *"representativeness or comparability",* picking sites that *"increase the chance for negotiating access*" and have *"high experience levels of the phenomenon"* (all healthcare organisations will have a patient safety culture whether they recognise it as such or not) and avoiding *"deviant"* or *"politically sensitive cases*".

Therefore, factors that influenced the selection of the case included:

- Typicality i.e., a non-specialist, non-teaching Acute NHS Trust (not in special measures or having a poor CQC rating).
- Accessibility, i.e., willing to allow researcher access, and willing to share organisational and ward metrics as well as permission to recruit participants.
- Locality, geographically accessible to the researcher.
- Welcoming, in that at least two wards of similar size and speciality were prepared to open themselves up to scrutiny.

The case in this study is a single healthcare organisation, one that is considered generally typical of those found across the NHS. It is not a specialist centre, but an Acute NHS Trust in England. By choosing a typical Acute Trust as the case setting and comparing two wards in relation to patient safety outcomes, a story can be told by presenting the voices of participants as accurately and comprehensively as possible as advocated by Guest *et al.,* (2011) and Yin (2009). Yin (2014) lists five rationales for the choice of a single case, one of which is being a 'common' case. The host case provides a typical story, one that emerges

from the individual case site and from the voices of those who work there, which will be recognisable by others, working in similar organisations (i.e., it could be their ward or hospital).

Following Trust and Health Research Authority (HRA) approval, an outline of the study and intention to recruit two wards was presented at a meeting with senior nursing staff from the Trust. Five ward managers expressed an interest in their wards taking part and indicated that they thought their staff would also be interested and willing to participate. The Director of Nursing and her senior team then operated a gatekeeping role which they indicated was based on their local knowledge of the areas. Permission was granted to present the study to staff on Alpha and Beta wards. This presented a limitation as this could be a source of bias but not being in a position to challenge, as an outsider with no prior knowledge of any of the wards or their metrics this removed potential for researcher biases (Tversky and Kahneman, 1974) consciously or unconsciously impacting on the choice of wards.

4.3.3 Data Sources

The goal of this study was to gain a richer understanding of patient safety culture and new insights beyond those that quantitative or qualitative sources could provide when used alone (Creswell, 2014; Yin, 2018). A central premise is that using both types of data sources in combination, provides *"the opportunity to reach a high level of nuance in the findings"* (Raimondo and Newcomer, 2017, p.197). The advantage of using both qualitative and quantitative data sources lies in the strengths that offset the weaknesses of each approach when utilised solely in isolation and *"combining quantitative and qualitative methods may generate deeper insights than either method alone"* (Moffat *et al*., 2006, p.1). For example, weaknesses might include the omitting of the voice of subject participants, or omitting contextual evidence which, with quantitative data and potential researcher bias (Tversky and Kahneman, 1974), might be overlooked. It also supports Yin's (2018) argument that this increases the validity of case

study (in contrast to Stake's (1995) less structured approach to case study design).

Open Systems Theory (see Figure 3.1, chapter 3) identifies the organisational structure, feedback on the organisation, inputs, and the processes by which these are transformed into outputs. Table 4.1 identifies the types of data and the sources that were used to illuminate the case study. This table also identifies how the data were collected and the analysis approach utilised.

Table 4.1: Data sources mapped to Open Systems Theory

Phase	**Open System Theory (OST)** **Element**	**Focus**	**Data source**	**Data Type, collection dates**	**Analysis**
Phase I Qualitative	Inputs Organisation structure and leadership	That each level of the organisation compromises a subsystem of inter-related parts that are responsible for outputs and that leadership and teamwork influence PSC	Documentary -Organisation. structure Trust website Documentary Semi-structured Interviews	Text -October 2017 details of organisational structure obtained from Trust website Text- CQC inspections reports for 2014 and 2018 obtained from Websites in May 2018 16 semi structured interviews with healthcare staff at all levels (see fig.5.1) conducted over 4-month period December	Descriptive details of Organisation Structure Content relating to structure Qualitative content analysis of text Qualitative Thematic Analysis Coding and systematically searching for where clusters of codes formed a pattern to emerge themes

				2017- March 20018 onsite / by phone	
	Inputs	That PSC is directly influenced by external inputs in the form of staffing levels and patient numbers which together create a single, synergistic source of conflict. That the system attempts to balance capacity and demand.	Documentary Staffing levels to beds Local demographics and patient needs	Text and numerical -Trust staffing establishment data for Alpha and Beta wards obtained in April 2018 Text and Numerical -Local data collected from Local Demographics from Trust minutes and annual report for	Descriptive metrics related to staffing levels and ward environment details Descriptive data

				2017 and obtained May 2018	
Phase1 Qualitative	Transformation	That, in order to provide the service of patient care, the organisation transforms inputs (patients, staff, resources) through processes, norms, application of skills and interventions in order to achieve desirable outputs. Those staffing levels, learning and skills, patient needs and numbers, ward design, processes, actions, organisational vision, and priorities influence PSC and delivery of safe patient care	Interviews at micro, meso, macro levels Documentary Board minutes Board minutes Mandatory training uptake and current PS syllabus?	Interviewed between December 2017 – Feb 2018, Micro staff Meso level Feb 2018- March 2018 Macro March 2018- April 2018 Text -Minutes from Trust Boards collected in April 2021 Text - Innovations and responses related to PS in 4 sets of minutes from 4 Trust Board	Qualitative Thematic Analysis Coding and systematically searching for where clusters of codes formed a pattern to emerge themes Qualitative content analysis of text Qualitative content analysis of text Qualitative content analysis of text

				meetings over two years in 2017/2018 Text in and numerical data in 3 sets of Trust Board minutes 2017/ 2018	
Phase II Quantitative	Outputs	That safe patient care is an important output. Incidents, errors, and harms accrued during in-patient throughput are viewed as undesirable and avoidable attributes of the system, its processes, and its staff. That these are recorded as a measure of the effectiveness of the organisation in order that there is an open learning from these to improve organisational performance	Trust dashboard data and Trust Board Minutes December 2017- March 2018 Metrics Safety Thermometer: Pressure ulcer, VTE, Falls Documentary - Never events and serious incidents: Diagnostic	Numerical -Safety metrics from Primary Data requested April 2018 for the period December 2017 March 2018 Numerical data Safety Thermometer Pressure Ulcers, VTE, Falls, Text and Numerical data taken from 4 sets of Trust Board minutes December	Quantitative analysis descriptive Quantitative analysis descriptive

			error and Medication error Documentary -Board minutes FTSU	2017 to March 2018 Text and numerical data taken from 4 sets of Trust Board minutes December 2017 to March 2018	
Phase III	Feedback on performance	That patient safety and quality of healthcare is an emergent property of the entire healthcare system not just organisational hierarchy or individual components, and individual organisations are in kept in a state of dynamic equilibrium by feedback loops of information and control (p.81).	Documentary CQC reports FFT Healthwatch Employee review	CQC Websites, 2018 and 2019. 13 statements from January 2017 – December 2018 period obtained March 2021 Trust Board Minutes 1 Healthwatch report 2018 related to dementia Trust Accessibility Accessed in March 2021 Employee reports from January 2018-March 2018 for the period January	Content analysis Quantitative analysis - largely descriptive Open-ended responses subject to content analysis to derive themes inductively

				2017- December 2018 5 statements from 12-month period Obtained March 2021	
			CareOpinion review	12 reviews for January 2017- December 2018 obtained March	Open-ended responses subject to content analysis to derive themes inductively
			FTSU	2022	Open-ended responses subject to content analysis to derive themes inductively
				10 FTSU - concerns raised	
			Staff survey	October 2017- March 2018	
				Staff Survey 2017- 2018	

The structure of the Acute Trust and the lines of accountability for the units of analysis (the wards) can be obtained from the way in which the Trust describes itself e.g., the Trust website in the public domain. Understanding the nature of the leadership and how this might influence patient safety culture and how priorities and visions are set is best understood from staff themselves. This may be from interviews and from the results of the annual staff survey. Several questions in the NHS staff survey relate to staff perceptions about the organisation's patient safety culture such as its willingness to report safety incidents and learning that results e.g., "does the organisation take action to ensure that errors, near misses or incidents do not happen again?"; "do you feel secure about raising concerns about unsafe clinical practice?"

The ability of the NHS to establish and maintain patient safety is influenced by resources (inputs). As shown in Chapter 2 there is substantial evidence on the association between staffing levels and patient safety and harm. The extensive literature also shows, however, that the processes of leadership, teamwork, training all help to balance the demands with its inputs internally, which is called throughput, resulting in patient safety. One aspect of understanding these internal processes of transformation is the role of governance and assurance by the Trust Board in improving incident reporting and review. Whilst it is known that leadership can create a culture of safety and improvement it is not known what staff in organisations at organisational level and within departments or clinical teams perceive needs to be in place to be perceived as having a good safety culture.

A raft of measures are used to measure patient safety. At the time of data collection that preceded the National Patient Safety Strategy (2019) which established a patient safety specialist, a single system for recording patient safety events (LFPSE) and patient safety alerts. The Trust was utilising several mechanisms to monitor care quality in relation to patient safety among them the NHS Safety Thermometer metrics, local additional safety metrics of Pressure ulcers, Hospital Acquired Infections, Falls,

Medication errors, staffing levels and Care Hours Per Patient Day. As the National Patient Safety Strategy observes (https://www.england.nhs.uk/patient-safety/the-nhs-patient-safety-strategy/#culture) there are marked differences between the volume and focus of measures selected for regular review that reflect the culture and beliefs that exist in relation to patient safety.

In an Open System Theory framework, the system then seeks feedback to determine if the outputs are effective in restoring equilibrium or in this case, organisational performance, and reputation. A raft of data is used to feedback on how an NHS Trust is performing and how it is seen externally. Evidence that is collected routinely includes inspections by the Care Quality Commission, complaints, Family and Friends Test (FFT), Freedom To Speak Up (FTSU), employee reviews (posted on the internet) and Healthwatch reports. Such evidence may be collected via survey (FFT), through audit, observation inspection and interviews (CQC) or volunteered comment from individuals. While this evidence provides some insight into the performance of individual health and social care providers, it is inevitably selective by virtue of its purpose and focus and those from whom opinion is obtained. This feedback data can provide only limited insight on the wider context or setting.

This case study thus used multiple data sources with primary data were drawn from:

- 16 interviews with staff at micro, macro and meso levels
- 2 NHS survey (2017, and 2018) and feedback responses from patients and staff
- 2 inspections (2014 and 2018) conducted by the Care Quality Commission
- Performance data from two acute medical wards over 4 months from December 2017 – March 2018
- Demand data (2017- 2018) relating to staffing establishment and patient acuity
- 13 sets of monthly Trust Board minutes from the meetings of the Trust from November 2017 – November 2018
- External website data from HealthWatch, CareOpinion, Indeed.co

This study employed multiple data sources and as such consideration was given to the priority accorded to each data type, the timing of each data source of data collection and where and when to synthesise and integrate the data (Creswell 2018). The priority of data collection method i.e., current, sequential or iterative (Moffat *et al.,* 2006) is an important consideration. This study commenced with qualitative individual interviews. This was followed by the collection of the quantitative organisational metrics. The rationale for this was to maintain researcher neutrality. By not knowing either wards' metrics or other external measures, the risk of confirmation bias (Tversky and Kahneman, 1974) (through having pre-conceived notions of which ward might be more, or less, safe than the other) was minimised. The timeframe for the quantitative metrics data was for this to be collected retrospectively for both wards but covering the same period of the year as the qualitative data collection. Information such as employee reviews posted on the internet and the 'Family and Friends Test' was collected after interviews had been completed and for a wider timeframe either side of the interview data collection phase. This combination facilitated examination within and across the data to understand the nuances of patient safety culture, reported perceptions, metrics that represented the 'real world' (Ross-Walker *et al.*, 2012) and the contemporaneous influences that might be affecting interviewees' responses. This design allowed for initial insights from analysis of the qualitative data to help clarify which quantitative Trust data to request.

4.4 Qualitative Data sources

4.4.1 Interviews

The interviews were to gain the perspectives of different staff at each level (micro, meso, and macro) within one organisation. These staff provide direct patient care or are responsible for ensuring the provision of harm-free care and thus are contributing to safe care from the various levels within the organisation.

4.4.1.1 Semi-structured interviews

An interview schedule based on the themes derived from the literature in Chapter 2 and mapped to Opens Systems Theory (Chapter 3) allowed for open questions that explored interviewees' perceptions and experiences of the system hierarchy, internal systems, leadership, management of patient throughput, patient safety culture and internal drivers of Patient Safety Culture (inputs). The advantage of semi-structured interviews was the opportunity for interviewees to tell their story and for the researcher to probe areas and issues raised during the interview in greater depth (Low, 2013).

A pilot interview was undertaken with a senior colleague to ascertain if the flow and sequence of questions was appropriate, free from bias and would be effective in relation to addressing the study's aims as argued by Castillo-Montoya (2016). Undertaking a trial run can identify issues before commencing the actual interviews and helps prepare interviewers (Pope and Mays, 2006). This resulted in some questions being altered to reflect participant roles prior to interview commencement so two interview schedules were developed, one relating to those working at ward (micro, level) (see Appendix 5) with questions related to communication, team leadership, perceptions of, and influences on, Patient Safety Culture and relating to feelings of safety, unit level culture, and learning from errors. The second, for interviewing participants at senior (meso and macro) organisational level, (Appendix 6) explored external influences, systems, systems hierarchy and connections between levels, internal influences, communication, team leadership, perceptions of, and influences on. These two interview schedules allowed for the different roles and responsibilities that participants have within an organisation and enabled the provision of different perspectives of safety culture within the organisation and Open System Theory factors that impact on this.

Interviews were conducted utilising both options of face-to-face and telephone interviews where interviewees were unable/unwilling to meet face-to-face. Both methods of conducting interviews have advantages and

disadvantages with face-to-face providing an opportunity to visually appraise the interviewee response while the phone interview provides opportunity for a greater sense of anonymity which can encourage more open responses (Opdenakker, 2006).

Interview lengths varied from 35 mins to just over an hour (mean 51 minutes). Participants were thanked for taking part and verbal re-confirmation of prior written consent (to study participation and audio recording) was obtained from those who had opted to be telephone interviewed before commencement of the interview. A research diary was used for making notes in the early interviews, so that the issues raised were then explored in subsequent interviews. It also proved useful in face-to-face interviews to record impressions of the participant's mood and behaviour/expressions that are difficult to capture on audio.

Interviews were transcribed in the order that they were undertaken and as soon after completion to ensure accuracy of transcription. Initial impressions were recorded in the researcher diary as soon as was possible after the event allowing for initial analytical categories to be identified that was later revisited after coding. This helps the researcher *"notice new things"* and *"make revisions"* to coding if appropriate thus aiding rigor and transparency (Seidel, 1998, pp.13-14). Participants were offered an opportunity to review transcripts of their own recorded interviews; none did so.

4.4.1.2 Sample and recruitment strategy

Interviewing participants who deliver care and those who are responsible for care delivery representing all levels from both wards (micro), middle managers (meso) and organisational level (macro levels) was important to gain perceptions and experiences from each level.

There is debate over how many interviews is enough (Guest *et al.,* 2006). As this is an exploratory case study within a single organisation, a *"formal sample size calculation is not necessary"* (Healey *et al.* 2015, p.140). Diefenbach (2009, p.883) emphasises that complaints that there may be

too few interviews in case study research are *"irrelevant since there are no quantitative relations whatsoever between interview data and their interpretations".* In Wittmeier *et al.'s* (2016) mixed methods single case study exploring barriers to children with complex needs accessing healthcare services, nine interviews were conducted with participants in practitioner or leadership roles but metrics on wait times, the volume of referrals and caregiver satisfaction with the service were also collected. Soffers *et al.,* (2014) reported redundancy (i.e., no new insights emerging) after seven interviews in their case study exploring what prerequisites might need to be in place before reorganising a Dutch mental healthcare facility. Marshall *et al*., (2013, p.19) found *"trends showing maximum impact around…15-25 interviews for single case studies".*

The pool of potential participants at micro level for both wards was 64 (registered nurses n=24 including both ward managers, unregistered healthcare assistants n=38, clerical assistants n=2). At meso level there were 4 people, and at macro level, 2. It was hoped to recruit around twenty participants, two-thirds from micro level including both ward managers and at least two from both meso and macro levels. Recognising how busy NHS staff are, these numbers seemed potentially achievable. In total, 16 interviews were conducted, with participants drawn from all levels, including both ward managers and two from both meso and macro level, thus meeting Marshall *et al*.'s (2013) threshold for maximum impact.

Inclusion criteria

- All HCAs rostered to work on both wards who were employed on a permanent contract at the time of the study.
- All registered nurses employed on a permanent contract on both wards including senior managers, divisional leads, and senior Trust executive board level directors.

Exclusion criteria

- Any nursing staff not employed on a permanent contract at the time of the study.

Following provisional agreement by two wards to take part, a meeting took place with both ward managers and matrons where more details about the study were provided, and questions answered. Like the Director of Nursing before them, these meso level staff acted in a gatekeeper role. They could, at that point, have changed their minds about the study in which case no recruitment could have commenced. Likewise access to organisational metrics that the Director of Nursing and the senior team had agreed to provide could have been blocked. However, they agreed that their staff could be approached and agreed to display the recruitment poster (Appendix 7) where staff could see it.

Agreements were made with both ward managers to revisit at specific times and dates to speak with staff who met the inclusion criteria, answer questions about the study. After recruitment and interviews of participants at micro level, staff at meso level and macro level were asked to agree to interviews. This order was undertaken because it was felt that issues highlighted by participants at micro level in relation to patient safety would facilitate the exploration of emerging issues in the subsequent interviews with those at meso/macro level. It was important to ensure that consent was voluntary, and no pressure was brought to bear on potential participants. Both wards were revisited at two-week intervals until the end of February 2018 when no new participants from ward level were forthcoming. In total, 30 members of staff were spoken with directly about the study and had the opportunity to ask questions face-to-face over the period of ward visits. Once micro-level interviews had been completed, meso-level interviews were undertaken with both ward matrons and the Divisional Operational Manager. Finally, the Trust's Deputy Director of Nursing was interviewed in late March, and the Chief Nurse at the start of April 2018. (A table of the study participants is provided in the Chapter 5, s.5.2.4).

Interviewing staff in their workplace presented difficulties where the only quiet area available was the staff room, or office areas, used for senior staff. Despite carefully choosing the times for interviewing it was not uncommon to be interrupted by other staff or the telephone ringing. When

interruptions happened, audio recording was stopped; if necessary, I would have exited the room (to maintain privacy). Interviews would restart if the participant was willing/able to continue.

Some participants chose to be interviewed by telephone. This initially presented some practical difficulties particularly with audio recording from telephone conversations. A quiet room was used to reduce background interference. Some participants were utilising hands-free telephones and moving around. Occasionally, questions had to be repeated, clarifications sought, or participants asked to speak up. In general, there were fewer disruptions during telephone interviews, possibly because these participants chose the location, which was usually off-site, either their car, or their home. Vogl (2013) argues that one of the advantages of conducting telephone interviews is that it encourages interviewees to talk openly and allows more control for them to direct the conversation to areas they perceive as important. Meeting participants in person prior to the interview was also believed to have provided an opportunity to develop some rapport (Farooq and DeVilliers, 2017).

The total number of participants interviewed was sixteen of which nine were ward level (micro level), four were manager/leader level (meso level), and three were macro level as indicated in Figure 4.2.

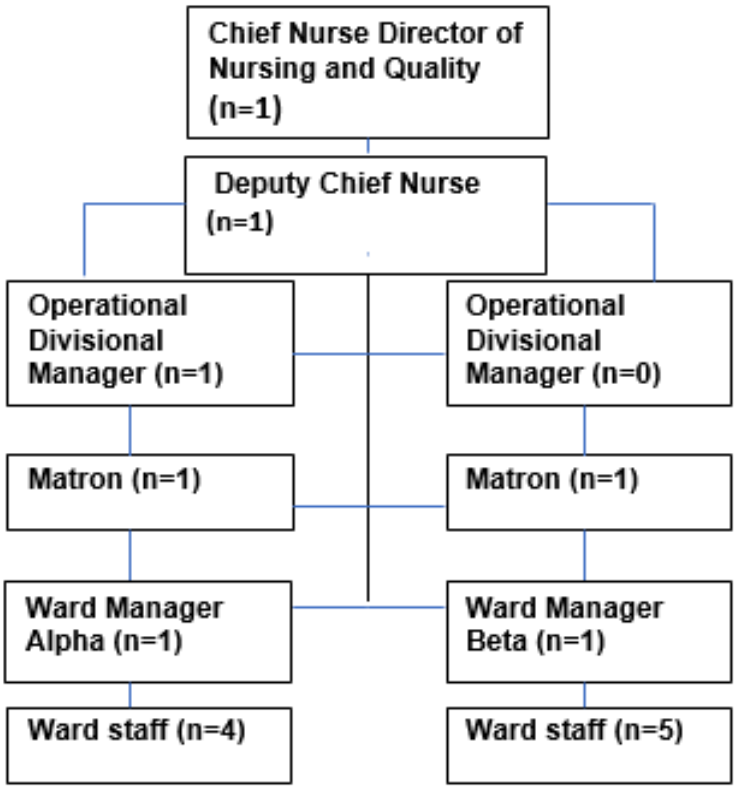


Figure 4.2 Trust structure with mapped number of participants

Eleven participants chose to be interviewed by phone with five other participants choosing to have face-to-face interviews. Table 4.2 (below) provides details of the participants by job role, number of years at the Trust and transcript code.

Table 4.2 Interview participants by job role within the organisation

Interview Participants	Macro Level	Meso Level	Meso Level Alpha	Meso Level Beta	Micro Level Alpha Ward	Micro Level Beta Ward	Transcript code	Number of years in post at the Trust
Chief Nurse (CN)	1						CN	15 months
Deputy Chief Nurse (DCN)	1						DCN	19 years
Operational Divisional Manager (ODM)		1					ODM	2 years
Matron (M)			1	1			Alpha M Beta M	5 years 7 years

Ward Mangers (WM)					1	1	Alpha WM Beta WM	6 years 4 years
Senior Staff Nurse (Band 6) Shift-co-ordinator (SSN)					1	2	Alpha SSN3 Beta SSN1 Beta SSN2	5 years 1 years 5 years
Staff Nurse (SN) (Band 5)					2	1	Alpha SN1 Alpha SN2 Beta SN3	5 months 1 years 6 years
Healthcare Assistant (HCA)					1	2	Alpha HCA1 Beta HCA2 Beta HCA3	3 years 8 months 6 years
Total (n=16)	2	3			5	6	Alpha n=6 Beta n=7	Average= 4.5 years

4.4.1.3 Approach to analysis of interview data

Thematic analysis provides a useful method for examining the perspectives of different research participants and can highlight similarities and differences while generating unanticipated insights (King, 2004). Guest *et al*., (2011) argues that the primary concern of thematic analysis is in presenting of the voices of participants as accurately and comprehensively as possible (which is why rich quotes are provided in Chapter 5).

There needs to be an identifiable structure and strategy to analysis. Braun and Clarke's (2006) six-step approach to coding transcripts and generating themes which can be replicated by others (Baker and Lewis, 2013; Vaismoradi *et al*., 2013) was used to guide the qualitative data analysis in this study. Their method is considered capable of underpinning high-quality analysis; many researchers have conducted their thematic analysis using Braun and Clarke (Joffe, 2012). Their approach is congruent with Yin's approach to data analysis and has been used in other doctoral case studies of the NHS such as Lindsay (2016). The process is *"not linear but recursive - researchers need to carry out frequent reviews in*

order to identify the stories within the data" (Vaismoradi *et al*., 2013, p.403). A summary of the process is identified in Figure 4.3.

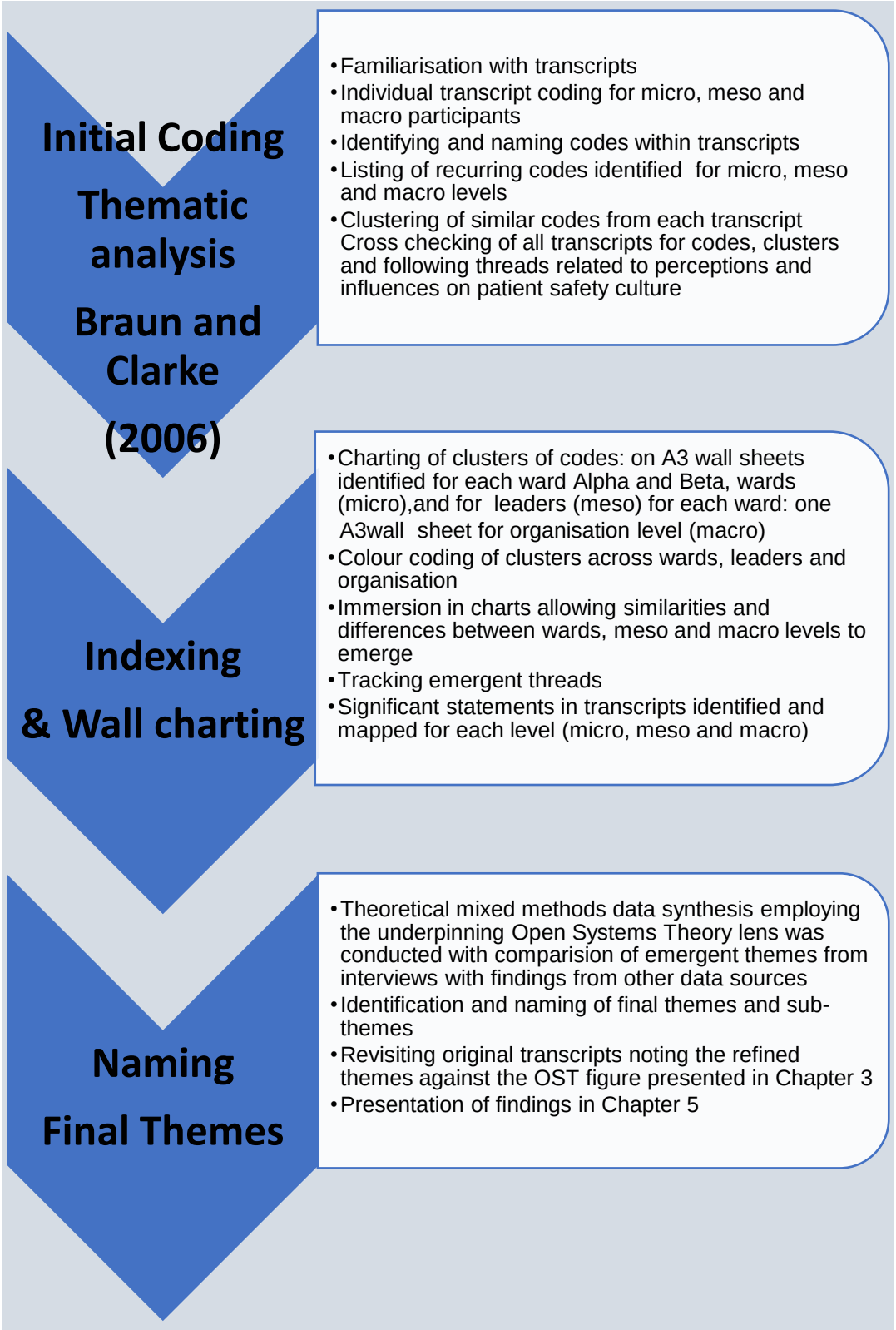


Figure 4.3 Overview of approach to thematic analysis of the data

The process involved each audio recording being transcribed manually and read several times for full immersion in the data (Vaismoradi *et al*., 2013). In preparation for coding, each transcript was divided into two columns with the left-hand column containing the transcript and the right-hand margin prepared for coding. Phrases or words or sentences (codes) were ascribed to capture the essence (Braun and Clarke, 2006). The research question was also continually revisited to help focus interpretation (Vaismoradi *et al*., 2013). The research diary was also continuously updated and used reflexively (Vaismoradi *et al*., 2013).

Transcripts were coded in the sequence in which they were interviewed: micro, meso, macro. This helped with the flow of coding and to identify nuances and emergent threads in the text (Joffe, 2012) because each interview allowed for more in-depth discussion or for pursuing issues that were highlighted in previous interviews. Use of computer-assisted analysis of qualitative data such as NVivo was considered at the outset of data analysis but following initial transcription it was quickly discounted as it was cumbersome and difficult to interact with the data whilst keeping the meaning of the language and the context.

At this point, numerous codes became identifiable across the transcripts. Coded transcripts were separated out according to a) the two wards, and b) the level: micro, meso and macro (see Appendix 8 for an example transcript). Individual codes from the Alpha and Beta wards (micro) were then transferred on to two separate A3 sheets of paper with similar codes being grouped together on the respective A3 sheets. This process was repeated for the ward managers/matrons of each ward separately (meso). And finally coding for senior organisational staff was transferred on to one A3 sheet (macro). A total of 254 initial codes were identified which comprised of: micro level: Alpha ward n=60, Beta ward n=59; meso level Alpha ward n=56, Beta=42 and macro level n=51. The transcripts and researcher notes were revisited (Vaismoradi *et al*., 2013) and the coding checked.

Next, mirroring an analytic strategy explained by Seidel (1998), the A3 sheets were hung on a wall. Coloured dots were used to identify common codes across charts starting with Alpha and Beta, (micro levels) (Appendix 9). This process was then repeated for the leader's chart for each ward (meso level) and organisational (macro level) with new coloured dots created for new themes. Visual charting and colour coding provided a helicopter view and enabled the identification of similarities and differences leading to the identification of coding clusters (Lewis, 2003; Vaismoradi *et al*., 2013).

4.4.1.4 Quality: Interview data

Establishing quality and rigour in qualitative research has long been debated with many concluding that a careful attention to detail can establish credibility (Ashworth, 2019). Thus, information is provided about the data collected, duration of time spent data collecting, sequencing as seen in Table 4.1 (s.4.3.3), with evidence of methodological thoroughness by providing detailed rationales for choices as outlined above and providing transparency within the research by good audit trails of the processes for choosing and organisation of the data. Use of a researcher diary and recording initial impressions of the emergent 'story' (Guest, 2011; Low, 2013; Kozleski, 2017) also helped to provide rigor in data analysis (Frambach, 2013; Ashworth, 2019; Holloway, 2020).

The presentation of the qualitative findings in Chapter 5 is a balance between 'showing data' and 'telling' to illustrate how the theoretical framework is employed within the analysis. Ashworth *et al.,* (2019) emphasise the importance of blending rigor with richness and that effective theorizing reflects a complementary synergy.

4.4.2 Documentary sources

Documents are both sources of information and "agents in their own right" since each document may have "brought about changes and alterations in the field" (Allen-Robertson, 2011, p.5). Documentary sources include written documents in the public domain that pertain to

patient safety (Trust Board Minutes, CQC reports 2014, 2018, FFT, Complaints data, Healthwatch and CareOpinion and FTSU). Documents were collected over the same four-month period during which interviews were taking place with additional documents (Healthwatch, Care Opinion, Freedom to Speak Up, Employee Reviews, Family and Friends Test and Complaints related to the study period collected during the period February 2021 to March 2021. These latter documents mostly covered a two-year period from January 2017 – December 2018 in order to provide surrounding context (Hebballi *et al*., 2015).

These documents taken together provide a picture on how the directors, the staff, patients, and carers associated with a Trust perceive how it is performing in relation to patient safety. Only the regulatory body of the CQC and the governance and assurance task of the Board specifically address patient safety, but it may arise in the external feedback on performance (Boddy, 2008). Nurettin Oner *et al.*'s (2016) systematic review of hospital financial performance studies identified that the percentage of patients who would definitely recommend the hospital and the percentage of patients who would definitely not recommend the hospital was among the performance measures assessed in studies. The 'Family and Friends Test' (FFT) is a similar type of feedback tool where service users are asked to complete an anonymous short tick-box survey on their experience and can add comments. The FFT for staff aims to:

"*promote a big cultural shift in the NHS, where staff have both the opportunity and confidence to speak up, and where the views of staff are increasingly heard and are acted upon.*" (NHS England, nd)

Although FFT results are in the form of data which are aggregated according to category (e.g., in-patient, maternity) and published monthly online (NHS England, nd), these are included here as a documentary source and not as an output metric as they arise from qualitative perceptions and observations.

4.4.2.1 Approach to analysis of documentary sources

Consideration was given as to whether to code the texts independently following Braun and Clarke's (2006) thematic analysis process, but the texts were frequently thin and written in 'note' form without the punctuation, 'flow' or clarification of points by the interviewer that characterises interview data. This 'non-reactivity' has the benefit that the text has not been influenced by the researcher (Appleton and Cowley, 1997) but reduced its amenability for coding.

Therefore, Hsieh and Shannon's (2005) conventional content analysis approach was employed. This approach is particularly suited to exploring a phenomenon (Hsieh and Shannon, 2005) in this case, patient safety culture. Rather than having preconceived categories, researchers immerse themselves in the texts to allow "the categories and names for categories to flow from the data" (Hsieh and Shannon, 2005, p.1279). The approach adopted then was to skim the documents to get an overview, then search for the relevant category of analysis (patient safety) to exclude irrelevant material (e.g. number of outpatient appointments). Documents exist within social "fields of action" (Allen-Robertson, 2011, p.4). In this present study, what is therefore included and how a document is presented reflects views and assumptions about how an organisation should function and relate to safe patient care and innovations and responses related to patient safety as seen in Table 4.1 (s.4.3.3) of this chapter. Following a similar strategy to Paul and Hill (2013) headings were developed to capture the same core themes identified through thematic analysis of the interviews.

4.4.2.2 Quality: Documentary Data

Organisational documentary data is frequently incomplete (Appleton and Cowley, 1997) even though the NHS is, and was at the time of the study, in a position to collect high-quality data (Leary *et al*., 2016). Thus, the data available to the researcher may not present a complete picture. Furthermore, content analysis can fail "to develop a complete understanding of the context" resulting in findings that "do not accurately

represent the data (Hsieh and Shannon, 2005, p.1280). Credibility (Lincoln and Guba, 1985) was supported, as advised by Hsieh and Shannon (2005), through prolonged engagement, triangulation with other data sources, negative case analysis and looking for contradictions.

4.5 Quantitative data

In the public domain, are the data that the Trust collected and reported on never events, serious incidents, and data as part of the Safety Thermometer (see Chapter 1) relating to pressure ulcers, falls, urinary tract infections with catheters, venous thromboembolism (VTE). These are collected for all wards on a standard day each month and are reported in the monthly Trust Board minutes which receives reports from the Patient Safety Committee. These data are reported numerically and as trends in performance reviews. In addition to routinely collected data, feedback is made in audits and observations by clinical staff, patients or carers (see section 4.4.1).

4.5.1 Approach to analysis of quantitative data

For the purpose of this study, the Safety Thermometer metrics were disaggregated, and the raw data provided retrospectively by the Trust for both of the case study wards for three months. Additional to the Safety Thermometer metrics, other quantitative data source used in this study were the mandatory safety metrics (hospital- acquired infection rates, drug errors and safety incidents) that were measured and monitored by the Trust and reported to the Department of Health. These were obtained retrospectively as raw data for both wards retrospectively for 1st December 2017 until the 31st of March 2018. The rationale for selecting these metrics is that they provided evidence of patient harms (outputs) during the throughput period of this study. In clinical practice, these monthly-collected metrics are used to monitor care and evaluate the impact of interventions on reducing avoidable harm. They provide a benchmark against which individual Trusts are measured.

Metrics data related to same time period that qualitative data was collected so graphics in the form of bar charts and line graphs were created to show trends over time for both wards allowed for visual comparison (Creswell, 2014). Inferential statistical analysis was not conducted since the two wards could not be considered to *"reflect the entire universe or pool"* (Yin, 2018, p.56) of the Trust and the metrics mainly reflected the period during which qualitative interviews were being conducted. Consideration was given as to whether imputation of missing data should be employed. Since this was an exploratory study, gaps in data contribute to the 'story' of the organisation (Guest, 2011; Kozleski, 2017) and, as Boussat *et al*., (2021) concluded, mean imputation (the only possible option regarding the metrics in this study) should be avoided, therefore no imputation was performed.

On its own, such data do not then reveal much about individuals or the organisation and where the deficits and risks in organisational systems lie. However, reviewing changes or incidents that occur over a specific period may illuminate staff perceptions and staff experiences. Actionable knowledge is supposed to be highlighted as part of a learning and just culture (Forster *et al.,* 2019), but comment is only occasionally made about the organisational response.

4.5.2 Quality of quantitative data sources

In relation to the quality of quantitative data sources, determining causality between variables was not possible in this study but separate metrics data could be correlated e.g., mapping staffing metrics to patient harms for the two wards and actual to required care hours, however, measures to address extraneous variables could not be taken. However, internal validity, as already identified, was addressed through rich contextualising description (Frambach, 2013) of the Trust.

Assessment of quantitative data quality included the evaluation of characteristics such as completeness, accuracy, validity, and timeliness, as suggested by Canadian Institute for Health Information data quality

framework data (CIHI, 2009). Wittmeier *et al.,* (2016) advocates assessing completeness, temporal consistency, and accuracy. The host organisation provided the quantitative data used in this study so these elements were outside the control of the researcher and, it must be noted that Trust databases were designed for creating dashboard data not conducting research. Consequently, some data were missing. Trust Minutes had missing data relating to the Family and Friends Test for September-November 2017. Prevalence data for the NHS Safety Thermometer was missing from April – December 2018 and individual harms data was incomplete. It was not possible to assess the accuracy of recorded data.

4.6 Synthesising data

Multiple data sources were used to inform this case study and recognising their complementarity and contradictions is a central part of synthesising data in case study research (Cresswell and Plano Clarke, 2018). The process adopted was informed by Yin (2014) see Figure 4.4.

Figure 4.4 Process by which data were analysed, ordered, and synthesised following the use of multiple methods in case study (Yin, 2014).

Quantitative and qualitative data were collected for different purposes and analysed differently: Quantitative metrics providing the contextual description for the organisation and the two embedded units of analysis (Alpha and Beta wards) were analysed descriptively with deductive comparisons of the two wards presented visually. Qualitative interview

data were analysed inductively so perspectives and influences on Patient Safety Culture from different organisational levels were captured and from external observations.

Comparisons were made between the interviews and metrics for Alpha and Beta wards allowing a *"search for patterns of relationship and meanings between and among both types of data".* Public Health England (2020) point health researchers employing mixed data sets to O'Cathain *et al.'s* (2010) paper. The "Following a thread" strategy (Moran-Ellis *et al.,* 2006, cited by O'Cathain *et al.,* 2010) was considered as they argue that their integration approach means different datasets *"retain their paradigmatic nature but are inter- meshed with each other" (*Moran-Ellis *et al.,* (2006, p.51). Since the study aim was to explore through an Open Systems Theory lens, how patient safety culture was perceived and influenced within an Acute NHS Trust, the theoretical integration strategy described by Åkerblad *et al.,* (2021) was deemed more congruent. Åkerblad *et al.,* (2021, p.2) define *"integrative strategy"* as "*the efforts that researchers make to carry out a mixed methods research process where they are aware of and explicate the choices concerning the relationship between foundations and praxis in a study"*. In the third of their example studies, Åkerblad *et al.,* (2021) used quantitative and qualitative data related to the same timeframe as in this present study which were analysed separately and concurrently. Thus *"if a specific, very interesting result emerged from one of the data sets, the researchers pondered whether it could be possible to discover something connected to the same theme in the other data set"* (Åkerblad *et al.,* 2021, p.10). Contextual knowledge was deemed "essential" to allow the "overall picture" to emerge and *"accomplishing the research task required reflection on the results in relation to the theoretical interpretative framework as the process progressed"* (Åkerblad *et al.,* 2021, p.11).

In this present study, the surrounding context was the wider NHS system as explained in Chapter 3 alongside a figure presenting an Open Systems Theory conceptualisation of the host Trust. Theoretical integration was

achieved by reflecting on the findings, results and insights obtained from the analyses of the different data sources in relation to the Open System Theory conceptual framework which embraced external and internal inputs, feedback, throughputs, organisational systems, hierarchy, and levels and the considering how these all related to patient safety culture and the provision of harm-free care (outputs). Ridder (2017) explains that theoretical integration requires either the building of a new theory or filling in the gaps in existing theory with the final stage being visual presentation because *"a visual theory with 'boxes and arrows''* (Eisenhardt and Graebner 2007) *"may visually demonstrate the emerged theory"* Ridder (2017, p.298). Figure 3.2 presented in Chapter 3, s3.4 was revisited in Chapter 6. A final *"loop back"* to the propositions was then made when drawing conclusions (Chapter 7) as recommended by Onghena *et al*., 2019, p.20).

The data are presented in Chapter 5 (s.5.4) in order to enable comparisons and a full picture and theoretical integration through an Open Systems Theory lens was employed. The qualitative data, for example, revealed dimensions that were not being measured in the Trust metrics or the Safety Thermometer. The merits of a case study combining these multiple data sources to explore the influences on Patient Safety Culture within an Acute NHS Trust is discussed in s.4.7. Consideration was given as to whether interpretation of data should be included in Chapter 5. A decision was made, on methodological grounds, that data interpretation would be the focus of Chapter 6. Whilst there is an intuitive appeal to the creatively minded researcher (Tracy, 2012) or those employing Gadamerian phenomenology (Fleming *et al*., 2003) there is a strong risk of "verbal overshadowing" which displaces "the expert knowledge" (Tracy, 2012, p.128) that the study data represents. Furthermore, there is a risk that "flashes of insight" that are presented as "interpretation" cannot be convincingly explained (Tracy, 2012, p.128). As a registered nurse of many years' experience, it was important to ensure the conclusions drawn from this study were firmly grounded in the case. Therefore, whilst there are alternative ways in which to present qualitative (or mixed methods)

data, the conventional linear deductive writing style (Tracy, 2012) that characterises most nursing scholarship was employed.

4.7 Establishing Case Study Rigour and Trustworthiness

Yin (2014) identifies four areas: construct validity, internal and external validity and reliability for establishing the quality of case study research. Construct validity, Gibbert and Ruigrok (2010) argue, is enhanced in case study methodology when there is more than one data source allowing the triangulation of interviews (for example) with organisational archival data (in this study, organisational metrics). Internal validity, according to Gibbert and Ruigrok (2010) can be met by incorporating a comparative case; in this present study, employing an embedded case study design with a minimum of two wards allowed for comparison. External validity is difficult to establish with single case studies, but analytical generalisation is possible when the case selected shares characteristics with other similar cases and full description of the case is provided plus Gibbert and Ruigrok (2010, p.17) advise that *"a nested approach"* i.e., embedded case study design strengthens generalisability (McLeod, 2013). Finally, Gibbert and Ruigrok (2010) suggest that a transparent report of the case study allowing possible replication ensures reliability.

Yin (2014) also recommends that provision of an audit trail of data collection is provided that allows the thought process to be followed. In this study, the analysis steps are fully auditable and supported by the researcher diary which provides evidence of the decisions made and a rationale for doing so. Member checking with participants and other experienced researchers in terms of overall findings and refining themes as part of the analysis process, is also recommended (Diefenbach, 2009). The reactions are then fed back into the findings. Guba and Lincoln (1989) indicate that this member checking is an important part of the credibility of a research project. One supervisor coded a selection of transcripts and subsequently independently worked on mapping which enhances internal validity (Diefenbach, 2009; Vaismoradi *et al*., 2013). The researcher and both supervisors engaged in joint sessions, charting, mapping and

agreeing the interpretation of data and the revised figure was subsequently taken back to the Trust key stakeholders, all steps which helped reduce the *"uncertainty of interpretation"* (Diefenbach, 2009, p.885). A clear audit trail in the following chapter details illustrates how the decisions made about coding led to the emergent themes.

A case study does not provide generalisable evidence and nor does it offer a great number of interviews which might be reassuring or convincing (Diefenbach, 2009). What it does offer are thick descriptions by which a researcher can suggest transferability of the evidence so that a reader can recognise the experiences described. Within a case study also, quantitative data allow for the 'real world' of the organisation to be compared with interviews' perceptions. The host setting was an Acute Trust unknown to the researcher. This provided for extra reliability in that there was no possibility of the researcher being unconsciously biased in how data were interpreted (Sharp *et al.,* 2012; Diefenbach, 2009).

As identified by Onghena *et al.,* (2019) there is no one specific approach that should be employed in terms of synthesising data for a mixed methods single case research (MMSCR) and, as yet no tool that fully embraces universal criteria that could be used to measure the quality of MMSCR. The Mixed Methods Appraisal Tool (Pace *et al.,* 2012; Souto *et al.*, 2014; Hong *et al*., 2018) identifies quality criteria for synthesis as whether (1) whether the different components are effectively integrated through joint displays and whether the integration process was explained; (2) the interpretation of the findings provides a complete picture (as opposed to two separate studies; (3) convergences and divergences are explored and explained. The synthesis process has been explained and data are presented jointly, in the next chapter, using the Open System Theory framework allowing the picture of the host organisation's Patient Safety Culture and convergences/divergences to emerged and be explored in the discussion chapter.

4.8 Minimising Bias

In an exploratory case study, particularly one undertaken by a sole researcher, the focus is upon exploration and examination and judgements as to what the data mean are made by the researcher (Moustakas, 1990). Taking steps, previously explained, to ensure study quality helped enhance verifiability. However, the search for knowledge and the judgements made necessarily reflect who I am, a nurse with a strong sense of the need to keep patients safe, a human being with my own values, experiences and biases (Tversky and Kahneman, 1974).

Even experienced researchers are prone to biases (Tversky and Kahneman, 1974) so need to understand how they have internalised their own knowledge and how their 'intuition' might introduce error. Tversky and Kahneman's (1974) seminal paper explains how personal biases can affect judgement albeit in relation to judging distance. Healthcare and healthcare research are affected likewise not just by knowledge and evidence but how information is interpreted, and that interpretation may be clouded by unacknowledged biases. Summarising Tversky and Kahneman's (1974) paper, people lack awareness of the 'heuristic rules' or 'short cuts' based on knowledge and experience that govern their impressions however it is possible to learn to recognise situations in which their interpretations may be biased. Factors to consider in recognising situations where personal bias may affect judgement are:

- Representativeness including insensitivity to prior probability of outcomes, insensitivity to sample size, misperceptions of chance (calculating odds), insensitivity to predictive accuracy, the illusion of validity.
- Availability bias due to the retrievability of instances (memory), effectiveness of search set, imaginability, illusory correlation.
- Adjustment and anchoring including insufficient adjustment, evaluation in cognitive and disjunctive events, assessment of subjective probability (Tversky and Kahneman, 1974)

Therefore, as part of the process of minimising bias, I was interviewed about my perceptions about safety culture, and these were then discussed with both supervisors. In case study research, the "credibility of such studies is enhanced if the expectations and involvement of members of the researcher team have been self-critically addressed" (McLeod, 2013, p387). This was a useful opportunity for me to examine my own perceptions and become aware of any personal bias. Another step employed was keeping a reflective diary throughout the entire project and thesis process. Discussions with supervisors were opportunities to discuss interpretations and these are highlighted in the steps taken so, for example, supervision meetings to present data analysis and themes identified allowed supervisors to challenge my interpretations (Vaismoradi *et al*., 2013).

Recognising my position as insider and outsider was a fundamental step in minimising bias (Coombs and Osborne, 2018) and identifying one's position relative to the phenomenon of the study is important in determining its impact on the interpretation of the findings and possibly on the participants themselves. As a nurse and an educator, I have a good working knowledge of the NHS and an understanding of key issues in relation to education and staff development. However, the host organisation was a site unfamiliar to me in terms of its personnel and geographic location making me an outsider thus reducing any preconceptions I might have had. Providing rich quotes and having other researchers analyse transcripts [sample transcripts analysis by both supervisors] allowed my interpretations to be challenged reducing the potential for bias (Terry and Bowman, 2020; Vaismoradi *et al*., 2013).

4.9 Ethical considerations

London South Bank University's (2014; 2020) Code of Ethics for Research Involving Human Participants were complied with. Guiding principles included respect for persons (autonomy), avoidance of harm (non-maleficence) to participants, the Trust, patients (should unsafe or

unprofessional practice be disclosed) and the researcher, compliance with legal requirements (confidentiality versus duty to disclose) and providing equal opportunity to participate in the study (justice) (Temple, 2019). In reporting this study, honesty, objectivity, carefulness, integrity, openness, and confidentiality were guiding values (Resnick, 2011).

4.9.1 Obtaining ethical approval

Initial meetings were set up with the then Acting Director of Nursing of the NHS Trust which was initially planned as the host setting in the summer of 2015. Permission was given subject to approval from the Trust's Research and Development Department and University Ethics Committee.
Ethics approval was obtained from the University's School of Health and Social care Ethics Panel in June 2015 (Appendix 10). Health Research Authority (HRA) approval was required in addition to the University approval in order to comply with a new process of assessment of governance and legal compliance for Ethics Approval of all projects related to the NHS. This replaced the existing local checks and ethics panels in April 2015, following the establishment of the HRA in December 2011.The roll out of the new system commenced in May 2015 with all new projects requiring HRA Approval from March 2016. As result HRA approval was sought and granted in November 2016 (Appendix 11a).

During the time taken in the process of achieving ethical clearance a new Director of Nursing was appointed. It was at this point that issues were raised with regards to the focus and direction of the study and the sensitive nature of the subject matter. Despite several meetings, and agreements to alterations with HRA and local Research Department approval, little progress was being made with regards to access. Other outer City NHS Trusts were therefore approached and in the summer of 2017 permission and approval was sought and obtained from the Director of Nursing and Research department of another outer London NHS Trust. An amendment to the original HRA was made and approval granted in early September 2017 (Appendix 11b).

4.9.2 Obtaining consent from participants

Informed consent was a prime concern in this study. This required consent on several levels: consent from senior nursing staff within the organisation and at ward level, consent to access and recruit participants. Along with gaining consent, it was necessary to make participants aware that I was a researcher but also a registered nurse. As the research related to aspects of patient care, and information disclosed that might breach a duty of care would have to be escalated and follow professional guidance as indicated by the Nursing Midwifery Council Code of Conduct 2015 updated 2018 (NMC, 2015, NMC, 2018). This meant that all participants received adequate information prior to being interviewed, had an opportunity to ask questions and were free to decline to participate. A participant information sheet for interviews was developed in line with the University's Ethics Code of Practice (LSBU, 2016) requirements and HRA guidance (HRA, 2016) (Appendix 11). Written consent was obtained then rechecked prior to commencing each interview. Consent was also sought for audio recording of the interview (Appendix 13). Participants were advised they had the right to withdraw from the study at any time and were assured that all data would be anonymised.

4.9.3 Protection of patients

Given the sensitive nature of the study topic, it was important to ensure at the outset that all participants within the study were aware of the steps that would be taken if issues or concerns about patient care, safeguarding or unprofessional practice arose. As a researcher and a registered nurse, I have responsibility to ensure that any concerns about safety and safeguarding are reported and escalated as outlined by the NMC, 2018 Professional Code of Practice as set out in its Safeguarding and Protecting People Policy 2018. The participant information sheet provided clear information on who would have access to the data, the boundaries to confidentiality and identified the steps that would be taken in relation to professional conduct concerns/safeguarding issues. Participants were all asked if they had read the information sheet provided that outlined the

benefits and risks to ensure that participants were made aware that should concerns arise during an interview, host Trust policy would be followed in respect to escalation to the appropriate line manager. Participants would be asked to seek support from the relevant agencies within the Trust and appropriate support would be identified to assist participants. Safeguarding policies and escalating concerns policies were available on the Trust Internet sites and staff were signposted to these if they needed more clarity on process within the host Trust. Responsibility for protecting all participants from potentially harmful consequences that might affect them as result of their participation is an important aspect of a researcher's role (Sanjari *et al*., 2014).

4.9.4 Data Security

All data were protected in line with the Data Protection Act 2018 and London South Bank University (2020) *Code of Ethics for Research Involving Human Participants*. Data collected in relation to qualitative data in terms of consent forms were stored within a secure locked cabinet within a locked office. All transcripts and raw audio files were stored on a password-protected computer within a locked office. All data were anonymised. All paper copies of anonymised data were also stored in a locked cabinet within a locked secured office within the university premises. Quantitative data obtained from the Trust were anonymised and all ward identifiable metrics data was again stored within a locked cabinet within a locked office. In order to protect the Trust from identification, caution has been employed in the reporting of numbers in descriptions of the Trust and, where necessary the actual number has been rounded up or down. CQC data were generalised to avoid any possibility that searching the CQC website for specific number, for example, infection rates, could allow the host Trust to be identified. Quotes regarding perceptions of the Trust that were retrieved from websites (CareOpinion, HealthWatch, Indeed.com etc.) were carefully checked by pasting extracted words/phrases from each source plus the source name into a search engine to ensure that the organisation could not be identified.

4.10 Chapter summary

This chapter has described the research strategy and rationale for why the design provided the best fit for the study's objectives. There is a detailed outline of the multiple data sources and how quality criteria were incorporated. It has provided a detailed description of the host organisation and the complementary study data to allow the reader to assess the transferability of the evidence and insights into Patient Safety Culture. Sincerity, and identifying, managing, and addressing one's own biases through self-reflection and discussions with supervisors were important elements of this study as reported in this chapter.

No formal protocol was used for integrating the findings; rather, a more interpretive, narrative approach was adopted which is described in the following chapter. Points of convergence and contradiction are highlighted demonstrating the richness and added insights gained from a case study approach.

Chapter 5

5.1 Introduction

This chapter presents the findings within the Open Systems Theory framework explained in Chapter 3. Yin (1981, 1984, and 2018) argues that a distinctive feature of case study is its “real world context” so the chapter commences with an overview of the case study setting (s.5.2) and the two units of analysis (Alpha and Beta wards). The chapter then is organised into the elements of the system: the organisational system as described externally and by its senior staff in interviews(s. 5.3); the inputs relating to the resources, bed occupancy and staffing available for the organisation and the two wards (s. 5.4); the throughput and transformation processes in managing challenges and tensions between flow and capacity and resulting pressures on patient safety as described by staff (s 5.5); the safety metrics (s.5.6); and the data related to feedback on organisational performance (s.5.7). This feedback included the Care Quality Commission’s (CQC) previous two inspection reports (2014, 2018) with particular attention paid to patient safety as well as the Trust Family and Friends Test, CareOpinion, HealthWatch, employee reviews and data from the staff survey.

Analysis of the data, as explained in Chapter 4, produced a total of 230 codes which were then grouped into sub-themes and themes as shown in Appendix 4. Several themes were identified in the qualitative data about how the organisational inputs were managed and the effect on patient safety. Patient complexity and needs, high levels of bed occupancy and low staffing were described as pressures and resulting in a need to prioritise. Rather than a balance being achieved, the organisation was reported by staff at the micro level to be compromising patient safety. The National Patient Safety Strategy (2019) outlines the importance of full and accurate reporting of patient safety incidents but a theme that emerged from the interviews is how reporting becomes another pressure for micro level staff. The interview data also revealed the perceptions of staff about how a patient safety culture can be developed, and themes emerged

relating to training and development of staff, job roles and responsibilities, cultural practices and behaviours, and leadership.

5.2 Case setting overview

5.2.1 The Acute Trust

This case study involves a large, Acute NHS Trust on the outskirts of a large metropolitan city in England. It was built under the private finance initiative (PFI[7]) in the late 1990s at a cost of over £90 million. The Trust employs around 2,000 staff. It has over 400 inpatient beds and provides acute services for over 350,000 people a year. At the time of data collection, services were commissioned through four local health authorities.

In 2010, the Trust faced some tough challenges, including an increase in acute admissions, following a political directive for planned reduction in local acute care beds resulting in the closure of a neighbouring emergency care service. This structural change was followed in 2013 by discussion of an intended merger with a neighbouring Foundation Trust but due, to financial issues at the other Trust, this was not granted government approval. The CQC (2014) report, based on an inspection in December 2013 considered the Trust to be “well led” (see s 5.3.1) giving it an overall rating of ‘good’. In addition, the report highlighted an established governance system at directorate level which fed into organisational-level Trust reports.

During the study period, the case site NHS Trust had a reported financial deficit of nearly £14 million. Other Trusts within the same region of the country were also carrying deficits varying from under £10 million to over £40 million. According to the King’s Fund Report (2019), over 45% of NHS Trusts were in financial deficit in 2018.

As with many other NHS acute hospitals in the outer and inner-City region, healthcare workforce recruitment, was a major issue, with vacancy rates

running above 15%, which was higher than the average of 11.9% across England (NHS Providers, 2017).

5.2.2 The organisational structure

The Trust was divided into eight clinical directorates in relation to patient care, overseen by six directors (some having oversight of more than one service). Figure 5.1 below provides an overview of the nursing structure of the organisation in relation to Alpha and Beta wards and their managerial and reporting structures.

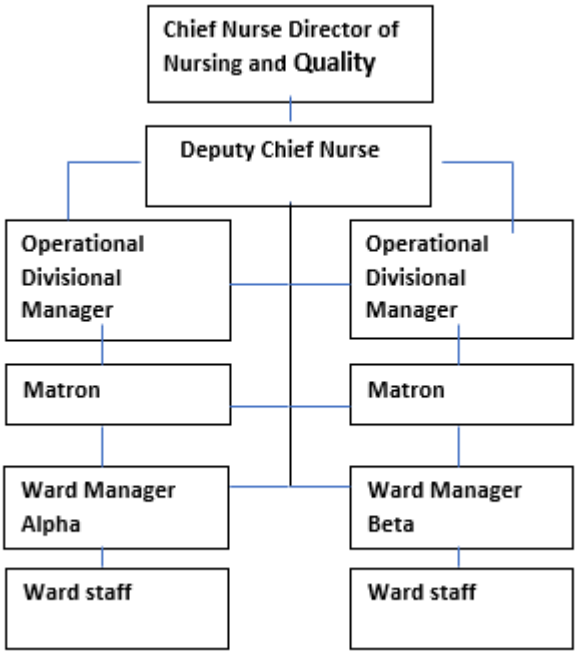


Figure 5.1 Diagram of the NHS Trust structure

The Trust had received four CQC inspections since registering with the CQC in 2010. In 2014, the inspection report gave a generally good rating noting that the managers were 'open and transparent about challenges' and that the staff were 'generally positive, engaged and loyal to the organisation'. However, improvement was recommended regarding the responsiveness of acute services. Several issues were highlighted: (1) delays in implementing some changes following serious incidents (2) rising demand for emergency care (following the closure of a neighbouring emergency care service) coupled with staffing shortages (3) bed

management problems, with up to 96% bed occupancy rates (in contrast to the national average of 86.5%) (4) the use of additional beds in clinical areas not designed or equipped for this purpose. As a result, the 2014 report concluded that two of the core services, urgent care, and surgery, required improvement. A CQC inspection (conducted November – December 2017) and reported in March 2018, concluded that the Trust continued to require improvement in the areas of medical care (Alpha and Beta were both medical wards), urgent care and surgery. In particular, the Trust had an "inconsistent" approach to learning from patient safety incidents (CQC, 2018). Medical care units had "poor adherence" to infection control policies and there was poor monitoring of safety systems at Trust level (CQC, 2018). One of the medical wards inspected was performing "much worse" than the national average.

The interview data with senior staff at the macro level revealed their perceptions about the organisational system and the ways in which it enabled or inhibited patient safety. In contrast to the CQC reports, participants at senior organisational level considered it to be "*a high performing hospital" (ODM).* The Trust was described by the Chief Nurse as "a family culture" that staff identified with, and reference was made to the staff survey results where over 60% staff (67% in 2017 and 62.6% in 2018) would recommend the organisation as a place to work and 73.9% (2017) and 71.3% (2018) would recommend it as a place for family and friends to receive care.

5.2.3 The two embedded units of analysis (Alpha and Beta wards)

The Trust was divided into eight clinical directorates in relation to patient care, overseen by six directors (some having oversight of more than one service). The two embedded units of analysis (labelled as Alpha and Beta wards within this thesis) sit within the emergency and unscheduled care directorate.

5.2.3.1 Alpha ward

Alpha was a 25-bedded acute medical and renal ward. The ward layout was a conventional layout for 1990s hospital structures, being a mixture of three 6-bedded bays, located off a central corridor, in the middle of which is the nurses' station to maximise ability to observe activities taking place throughout the ward. The remaining bed areas were a mixture of single and double-bedded rooms. Normally the bay areas were designated as male or female occupancy and the ward was originally designated mixed-sex accommodation. There was also potential space designated for an additional bed, which uses the window recess of each of the three 6 bedded bays. These were known locally as 'escalation bed' spaces and only to be used when extra capacity is required in emergencies, thus increasing the total capacity of this ward to 28 beds. However, it is worth noting that these emergency escalation bed areas did not have any of the necessary equipment required for the care of acutely ill patients (i.e. wall piped suction and oxygen, or full curtains etc. in order to maintain privacy, instead free-standing equipment and partition screens had to be used). The 2018 CQC inspection report concluded that escalation beds without piped oxygen and call bells were "not fit for purpose".

5.2.3.2 Beta ward

Beta was a 24-bedded medical ward: a designated frailty ward for older patients with chronic complex medical conditions. The layout was a mirror image of Alpha, with three 6 bedded bays off a main corridor, in the middle of which was the nurses' station. The remaining beds were single-bedded rooms. Similarly, the bays were designated male or female and the ward was designated as mixed sex accommodation. Beta ward also had space for additional 'escalation' beds in each of the three window bays thus, taking their potential capacity to 27 patients (one less than Alpha)

The size of each ward was increased from the initial bed number when the hospital first opened by converting 'day sitting rooms' that were built as social spaces into additional bed spaces and thus increasing the individual wards' bed capacity. Since then, management had also adopted a process

of ‘boarding patients’, that is adding three additional beds on to the ward and introduced cohort nursing.

5.3 Inputs

As explained in Chapter 4, under Open Systems Theory, inputs are external influences upon the organisation that arise from the surrounding environment. These included national-level inputs in the form of the Trust Vanguard initiative, population demographics of the geographic area served and staffing resources. The interpretation of this data is that it is illustrative of the external influences on the organisation that arise from the surrounding environment (Thompson and McHugh 2002).

5.3.1. Vanguard initiative

The government’s vanguard initiative was an external, national-level input upon the Trust which had started collaborating closely with an inner-City teaching hospital. NHS England (2016) introduced Vanguards as acute care collaborations introduced by the government’s 2016 white paper, *NHS Five Year Forward View,* to link hospitals together to improve their clinical and financial viability. Nationwide, there were 50 Vanguard projects, 13 of which are in acute care (NHS England, 2016). The local Vanguard project was focused on bringing services closer to patients in two specialist services (neither relating to either Alpha or Beta wards) with aims related to developing staff and delivering “high quality healthcare in a climate of “scarce resources” (Trust website, 2018).

5.3.2 Local community demographics

An external, local-level input upon the Trust was the community it served (and from which it drew a substantial part of its workforce). Current organisational challenges included sitting within a geographic area that has been changing in terms of increasing population need because new houses had been built which subsequently impacted on the social economy. The Trust site serves a growing population consisting of a higher-than-average Black, Asian, Minority Ethnic Groups (BAME)

population and lone parent families. One of the boroughs has a BAME population of over 24.9%. This compared to the national average of 8.3%. Hayanga *et al.*'s (2021) systematic review identified that being from a BAME background significantly raises a person's risk of disability, illness and health inequality and ethnic inequalities exist in relation to sub-optimal disease management resulting in emergency hospital admissions. The ageing population (people over 65 years) was also predicted to increase in the short term. The number of people in the local area reporting that their lives were impacted by disability (a little/a lot) was over 16% (Trust Annual Report 2018).

5.3.3 Bed occupancy and patient frailty

The annual average bed occupancy across the Trust was indicted as lying between *"108 percent to 103 percent" (ODM).* A bleak comment by the Chief Nurse exemplified the fact that there were minimal seasonal differences and staffing issues, lack of beds and resources were now a year-round problem.

The bed occupancy rate for Alpha ward remained steady over the four-month period between 99.5% and just over 100%, whereas Beta ward's bed occupancy was lower in December at 98.5% rising to 100% in January and remaining at a steady 100%. As Alpha was a 25-bed ward but had a bed occupancy of between 26.03 and 27.09 beds occupied over a four-month period, this demonstrates that the three additional spaces (for emergency use only) were consistently in use. The situation was similar for Beta ward, a 24-bed ward where the occupation rates ranged between 24.6 and 26.9 beds, indicating that their additional bed spaces were also in constant use.

5.3.4 Staffing levels

The nursing staffing requirements (known as the staffing establishment) of wards are derived from a combination of a) the number of beds b) the type of patients being care for, and c) the numbers of nursing hours required to deliver care for this number and type of patients. This is calculated in

terms of WTE[8]. At the time of this study, the budgeted staffing establishments for each ward were as shown in the following table:

Table 5.1 Budgeted (2017/8) Staffing Establishment for Alpha and Beta wards

Ward	Alpha	Beta
Bed capacity	25	24
WTE[7]	35.72	36.10

The higher establishment figure of 36.10 WTE for Beta ward reflected the greater needs of the frailer elderly patients. It was designated as a frailty ward in 2016 when its staffing establishment was increased, and the bed capacity reduced by one.

Overall, the Trust had reported an increase in total staffing level by 13% since 2010. The average age of its workforce in 2016 was 43 years with over 40% of the nursing workforce being over 45 years. Nearly half of the part-time staff were over 50 years old. The Trust relies on its local community links, with much of the non-clinical workforce being employed from the local area and some employees having other family members employed either currently or previously. This, as with many outer City acute district hospitals (and confirmed by participant interviews) gives it a strong ethos of family in the way the workforce interacts and has a sense of pride in serving its local community.

However, the Trust shared the same difficulties as other outer City acute Trusts, including those of sustainable recruitment and retention of its registered nurses. It had previously used overseas recruitment drive from both EU and non-EU countries with varying amounts of success. At the time of data collection, the total staff vacancy rates ranged from 15.6% to 16.47%, with a turnover of 9.7% to 10.2%, and a sickness rate of 3.8%.

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[7] [8] WTE refers to whole time equivalent where whole time equates: 1 WTE = 37.5 hours per week

This is higher than the vacancy rate across large UK cities, which at the time was identified as 14.8%, (NHS Digital, 2018).

Along with their budgeted staffing establishment figures, each ward assessed and recorded its existing patients' acuity and dependency scores daily. This information was inputted electronically into the daily staffing rotas and determined the number of nursing hours needed to meet the needs of the patients on the respective wards. As a result, the levels of both registered and non-registered staff could be increased by requesting additional staff via the in-house bank (which is a regular pool of staff who are either already known to the hospital), or offering additional hours from their regular contracted hours, or via an external staffing agency.

Despite Alpha and Beta wards being similar in size and staffing establishments, the numbers of staff on duty each day were based on fluctuating requirements of patients' dependency and acuity levels. The ward staffing levels were revisited as each ward's patient profile changes, and the nurse-patient ratios were altered to respond accordingly. In general, all ward staffing establishment figures were reviewed routinely every six months as part of the Trust's monitoring process, and more frequently if the patient profiles or a significant change in speciality occurred.

The Actual Staffing establishment (WTE) by grade/ banding for Alpha and Beta wards from December 2017 to March 2018 is presented in Table 5.7 which identifies the actual numbers of staff working on each ward, during the time of this study (December 2017 to March 2018). It includes both registered nurses and non-registered staff; the latter includes healthcare support workers and clerical staff employed in each ward by role designation[8] and associated pay banding[9].

[8] This refers to generally the role performed by the person i.e., staff nurse, healthcare assistant. clerical

[9] This refers to the pay band and is an NHS wide pay grade scheme

Table 5.7 shows that both wards had the same numbers of band 6 and 7 (ward manager and senior staff nurses/shift co-ordinators) over the four-month period. Both wards had fluctuations in the lower bands who are involved in direct patient care (bands 2, 3 and 5). The administrative and clerical banding remained stable over the period of the study.

Table 5.2 Staffing on wards during study period in WTE

Designation	Banding	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
		12/17	12/17	01/18	01/18	02/18	02/18	03/18	03/18
Ward Manager	7	1	1	1	1	1	1	1	1
Senior Staff Nurse	Band 6	3	3	3	3	3	3	3	3
Staff Nurse	Band 5	7.07	7.15	7.99	8.15	8.99	8.15	8.99	7.15
Healthcare Assistant	Band 3	5	1	5	3	5	3	5	3
Healthcare Assistant	Band 2	14.95	15.21	15.33	15.21	15.33	15.13	15.33	15.13
Admin & Clerical	Band 3	0.75	1	0.75	1	0.75	1	0.75	1

Table 5.3 (below) identifies Beta ward as having more staff vacancies than Alpha ward, with an overall deficit of 6.82 WTE posts. In comparison, the staffing establishment for Alpha ward was running at a deficit of 3.96 WTE. The data also show a higher staff turnover on Alpha ward who lost twelve staff in comparison to Beta ward losing three in a 12-month period prior to December 2017.

Table 5.3 WTE Budgeted Staffing establishment for both Alpha & Beta wards as on 31st November 2017

Ward	Establishment WTE	In post Head count	In post WTE	Vacancy WTE	Vacancy %	Head count of leavers	Net WTE
Alpha	35.72	34	31.76	3.96	11.09%	12	46.35
Beta	36.10	32	29.28	6.82	18.89%	3	37.58

The breakdown of additional use of agency and bank staff for Alpha and Beta wards to assist in covering these staffing shortfalls is identified in Table 5.4. This shows a higher usage of agency or bank staff for Alpha ward which used an additional 14.59 WTE in comparison to 8.23 WTE total for Beta ward over the four-month study period.

Table 5.4 Bank and agency use recorded for Alpha and Beta wards from December 2017 to March 2018

Ward	Non-medical agency usage WTE	Non -medical bank usage WTE	Total WTE
Alpha	6.35	8.24	14.59
Beta	2.28	6.04	8.32

In summary, Alpha ward had one more bed than Beta ward with an extra 1.62 WTE on its overall staffing establishment. However, Alpha ward had a higher vacancy rate (6.82 WTE) than Beta (3.96 WTE) during the time of the study. Alpha also had a higher turnover of staff than Beta although Beta had more posts remaining vacant for the same period.

The number of care hours provided per patient per day (CHPPD) was calculated using the monthly safe staffing data. It comprises of:

a) the total number of hours worked for all staffing levels on each ward and

b) the total number of patients at midnight for each ward.

These figures were aggregated every month and provided a way of comparing the deployment of staff on all the hospital wards. Figure 5.2 (below) identifies that the number of hours expressed in WTE required to meet patient needs for each month was greater than the actual numbers of staff in WTE available on both wards. Both wards required additional hours to meet these care demands.

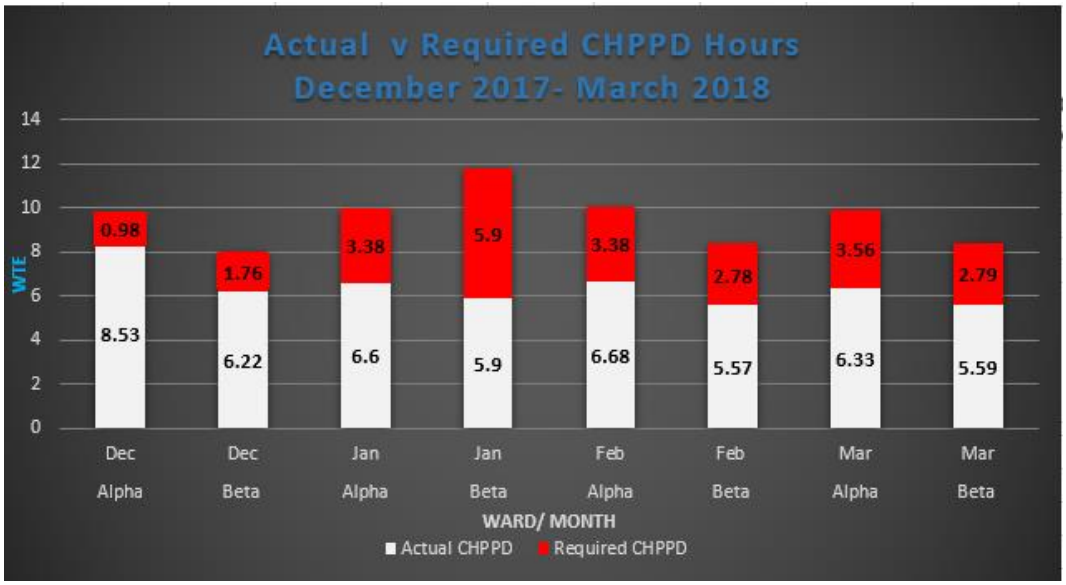

Figure 5.2 Actual care hours per patient (WTE) available versus the required number of hours (WTE) needed in response to acuity and dependency levels for Alpha and Beta wards, between December 2017 and March 2018

On average, Alpha ward was short of 2.82 WTE staff over the four-month study period (ranging from 0.98 WTE to 3.56 WTE) and Beta was short of 3.3 WTE staff over the four-month study period (ranging from 1.76 WTE to 5.9 WTE). However, Beta ward was less consistent in its needs with an extraordinarily high demand for an extra 5.9 WTE staff in the month of January.

Figure 5.3 (below) indicates the number of agency and bank staff that were used to fill these identified gaps. As this shows, Alpha ward used an additional 4,600 hours of registered nurses (2,800 hours of agency and 1,800 hours of bank nurses) to meet their patient needs. Beta ward used an additional 2,100 registered nurses (1,450 hours of agency and 650 hours of bank).

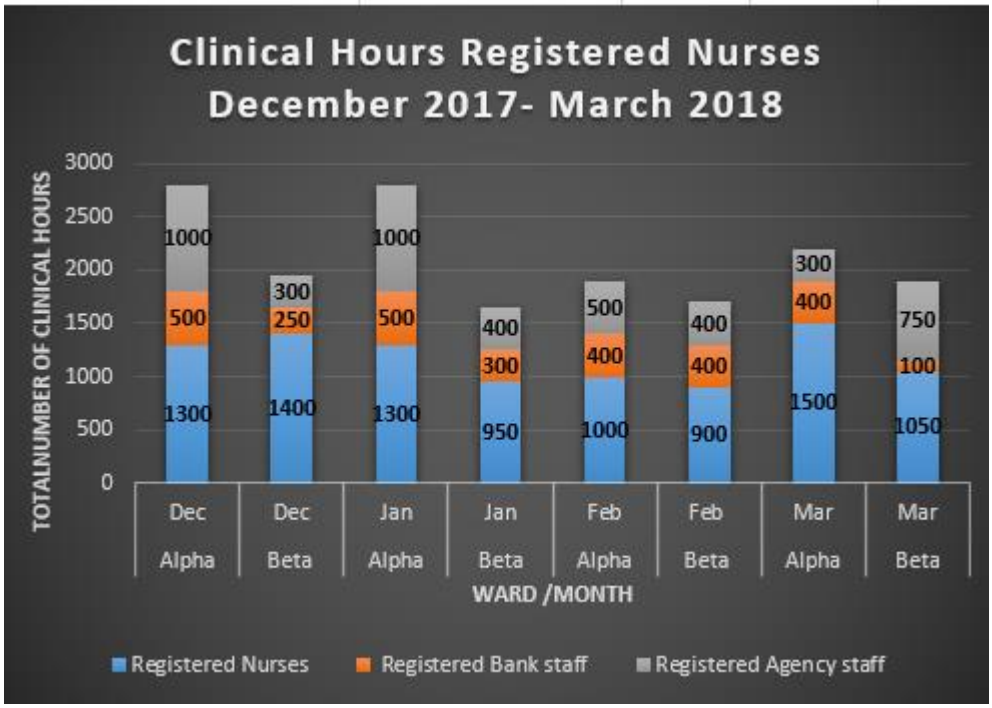

Figure 5.3 Total number of hours provided by ward registered nurses or by additional bank or agency on Alpha and Beta wards between December 2017 and March 2018

In addition, Alpha required an extra 3600 non-registered staff compared to 2000 hours of non-registered staff required by Beta ward (Figure 5.4).

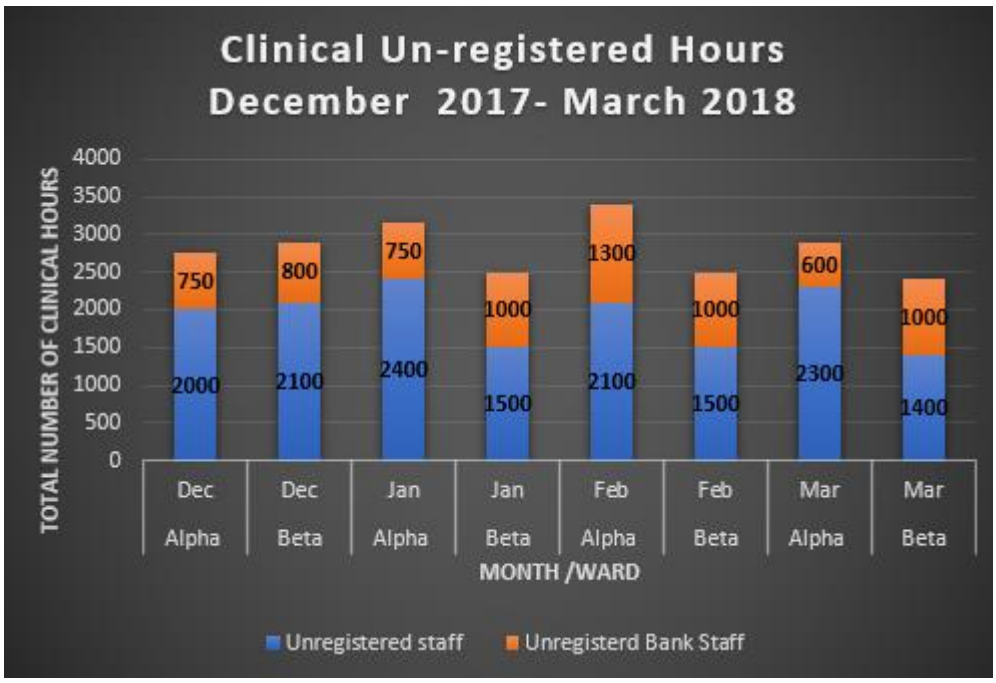

Figure 5.4 Total number of hours provided by ward un-registered nurses or by additional bank or agency on Alpha and Beta wards between December 2017 and March 2018

5.4 Throughputs and transformation processes

The transformation process involves healthcare organisations using the available human and physical resources to provide services to patients who are going through the system. The Trust organisation, as an open system, balancing inputs against available resources, has to balance the staffing shortages, patients' clinical complexity and physical facilities such as ward design as inputs, the organisational and environmental factors of changing demography and financial constraints of NHS resourcing to manage patient throughput. This process of balancing is to achieve good patient care with low levels of harm and staff satisfaction with the care they can deliver as outputs. How this transformation is achieved was revealed in interviews with staff at all levels of the organisation. Interview data were thematically analysed. A total of 230 codes were found which were then grouped into sub-themes and themes as shown in Appendix 4. Eight sub-themes were identified relating to the transformation process: pressures (s.5.4.1), priorities (s.5.4.2), balancing of pressures (s.5.4.3), reporting and communication (s.5.4.4), organisational hierarchy (s.5.4.5), leadership (s.5.4.6), roles and responsibilities (s.5.4.7), staff development (s.5.4.8).

5.4.1 Pressures

Maintaining patient safety, implementing alerts and developing a positive culture about patient safety were all inhibited according to all levels of staff due to a lack of skilled and experienced staff and reliance on less qualified staff taking on more senior roles. Staff reported that they had limited time and space to engage in quality improvement initiatives that could support effective alert implementation, or to attend relevant training in in the trust.

Additionally, staff recognised the specific pressures of the case study wards that are outlined in s. 5.4 of patient acuity and staffing shortages:

> *"The numbers of patients we have, the acuity of the patients and the type of patients we have...I don't think we have enough staff on the ward to provide safe care...It's getting the skill mix right and also*

making sure that we have the appropriate level of staffing for the level of acuity of our patients." (Alpha, SSN3)

Senior staff described organisational pressure attributing this to demographic pressure from increased number of residents and an increasingly elderly population which were perceived as adding to the already overstretched social services as well as the acute sector:

"The social economy around the hospital sites is changing pretty much on a weekly basis. I think about social care or primary care is, I think on the verge of collapse... that's driving more acute demand into the hospital and with that has come some financial pressures." (ODM)

The senior organisational managers understood the impact of increasing demands on beds, the ever-changing health profiles of patients and the shortages of resources including difficulties with staff recruitment. They seemed acutely aware of the impact on standards of care and attempts to maintain patient safety:

"Obviously, quality of care must be impacted on by the number of patients being looked after in one particular ward in terms of the number of people that are able to deliver that care...we are definitely getting more cognitive-impaired patients than we were, and we are also seeing patients with complex health needs. You get patients who probably need more one-to-one nursing [that] sometimes [can] be provided, sometimes we can't." (DCN)

The Director of Nursing commented on the failure of different parts of the organisation to be able to appreciate the bigger picture and thus differences in patient safety culture developed between areas.

"Capacity has a big impact it means that staff focus on the immediate rather than having the time or capacity to understand what's happening in everybody's else's areas" (*CN)*

Participants, like the Matron of Alpha ward, were acutely aware of bed capacity, patient complexity and the required skill mix of staff needed to meet these challenges:

> *"Where we are dragged into different aspects of the job and you have to be able to juggle all of these and then having a line manager and a general manger there, then that conflict is there between patient safety and operational pressures and targets. It's probably got worse over the years and those operational pressures have often taken priority...the patient profile changes quickly, and different services change and the fact we are constantly looking at and saying, are we still safe and our staff needs met in relation to the types of patients we are receiving."* (*Alpha, M)*

5.4.2 Priorities

Staffing shortages, the increasing complexity of patients and an ever-changing profile of patients meant staff had to prioritise activities and felt they had to ration care potentially undermining patient safety:

> *"We're having to make decisions like that on a daily basis and that is affecting the standard of care that we want to be able to give our patients with the actual reality of what we're able to do given the other circumstances we find ourselves in." (Beta, SSN2)*

The organisation's senior staff acknowledged that decisions to ration care may need to occur but did not accept that it should impact on 'basic' care:

> *"It's all about the assessment of the patients' needs and even in my day people had to identify what the priorities were with insufficient numbers of staff available. People had to decide whether patients got hands, feet and bottoms done in terms of washing". (CN)*

One micro level participant considered that meso level staff were aware of the reality on the wards but prioritised finding beds over safe patient care and staff well-being. There was a perception at micro level that the

meso/macro levels were both ignorant of ward pressures and patient safety concerns or were prepared to ignore them in order to meet other organisational goals.

> *"I think they do know what it's like on the shop floor. I know that, for example, the site managers are often aware of the situation because they are often looking for beds so they know when we are very busy. I can't see whether they care about the amount of anxiety that we feel when we are stressed out...Honestly, speak to people or to the managers or...the site managers and it feels like we're living on different planets so they have no idea all of what's going on...the actual shop floor. Maybe this's because it's not affecting them directly, I do not know but that's the way I'm feeling". (Alpha, SN1)*

5.4.3 Balancing pressures

Because most of the interview participants attributed staffing shortages as impacting on patient safety, flexibility in staffing was identified as the main strategy to minimise patient harm. At macro level, the system was designed to require requests for additional staff to be clearly framed in terms of threats to patient safety. Senior staff at organisational level felt that there was a robust process and definitive criteria based on proper risk assessments rather than perceived need. The Deputy Director of Nursing considered that the detail was necessary and expected ward staff to articulate their rationale:

> *"That's the level of detail we ask for in a temporary additional staffing form...that's the level of detail that we are expecting them to know...so that they can articulate why they needed additional staff. So, it's the whole 'painting the full picture' when they come to me. We look at what other additional staff you have on the ward, is patient safety compromised on the ward?"* (*DCN)*

Participants at meso and macro levels varied in their response to the process for requesting additional staff. Meso participants perceived that

the lengthy process required to get additional staff approved was mostly connected to the financial situation:

> *"We are in financial recovery at the present. A request for additional staff is challenged at directorate level, because restraints of providing additional specialist staff to provide specialist care have been pretty much removed and made more challenging because of the financial crisis." (ODM)*

To avoid employing bank and agency staff micro level participants claimed that frequently staff were moved from other wards, a measure that they believed threatened patient safety as such staff were unfamiliar with the award environment.

The Chief Nurse perceived that the process of requesting additional staff required a rigorous risk assessment for patient safety because of organisational accountability externally to government and taxpayers:

> "*What I say to the staff is that there is no problem with requesting additional staff for that additional dependency but that we need to make sure that we've done a proper risk assessment rather than just putting your finger up in the air and saying that 'we need', or saying, 'I think I might need another additional person on today'. What we do need to be able to do is to evidence it. At the end of the day this is public money. It's about safety." (CN)*

Meso level management could feel powerless to prevent actively unsafe conditions:

> *"I was on call at New Year's Eve, and I got called to [name removed] our stroke ward…they were down to two trained nurses and two healthcare assistants. And myself and the site manager looked across the hospital to see if we could find any additional staff to cover and staff on that ward but we couldn't find anyone and this was the first time in my career that I felt quite helpless but it was one of the times in my career that I felt I can't actually do*

anything here and it was the first time that I felt that the night-time care was unsafe". (ODM)

Both Alpha and Beta wards had seen an increase in dementia and other cognitively impaired patients being admitted where no additional staff could be supplied to provide the one-to-one care required. Participants on both Alpha and Beta wards indicated that it was now common to employ 'cohort nursing' as a means of managing and mitigating the safety risk to these specific patients who are confused, can wander and be highly agitated:

"It is either having a one-on-one person with them or, are having one nurse…or a person to sit between two patients. To sit with them, interact with them. And this is on a very regular basis". (Beta, HCA3)

Cohort nursing was perceived as an 'acceptable' risk at organisational level and that one-to-one care should only be for the critically ill or those posing a risk to self or others:

"*It's [Cohort nursing] not done so much from the financial side, it's done mainly from the safety side otherwise you get some unrealistic expectations that all of these patients require one-to-one nursing, but they actually don't…It should be one-to-one for critical needs or physical needs that endanger yourself or others". (CN)*

5.4.4 Reporting and communication

The National Patient Strategy (2019) highlights how important is reporting of incidents by staff and the annual staff survey has included a question asking staff on their willingness to report safety incidents (see s.4.4.6).as this is key to patient safety culture. Interview participants identified the use of Datix (the NHS electronic incident reporting system) as indicative of a positive safety culture. The organisational IT infrastructure allowed those at meso and macro level to see Datix information in real time and these participants assumed that (a) all ward staff were aware of the Trust

policies and procedures for completing Datix forms; (b) all knew how the system works and (c) all were compliant with the policies:

> *"I see all the Datix's...see all of the information coming through the declaration group every Wednesday and anybody within the organisation can raise a concern. It doesn't really then take a lot to work out when somewhere is really worrying you, it might be more than one thing if we have got an increase in falls ... increase in pressure ulcers, it's all that sort of quality measures". (DCN)*

Ward managers believed staff were quick to vocalise issues in relation to staffing that threatened patient safety:

> *"Staff are more vocal, verbal and are happier to say I don't think we have enough staff or if they are short...people are happy doing Datix and now it's electronic. When I first started it was paper input form, now they get review more often. It's a much better log to what the incidents are...safety related issues of short staffing. If you're short staffed, you do a Datix so we have a very good reporting culture in this Trust...I would say." (Alpha, WM)*

Another interview participant claimed however, that reporting had little purpose and there was little confidence in actions being taken:

> *"It's so much data that's being collected and so much time that's being spent on it and that's distracting from actually the patient care that we need to be giving because we are collecting all this information and you wonder what's been done with all of it and what difference it actually making?" (Beta, SN3)*

This latter observation reflects how micro level staff perceived that implementing patient safety concerns arising as a consequence of short staffing was just one more thing to do, that gets pushed down priorities and was not thought likely to lead to change. As one staff nurse reflected:

"We tend to write in the notes that we have recommended that this patient not be placed in this day or in this bed because of etc. And then we will generally write that we have been overruled by the site manager. But there would be no point in doing a Datix form for them because nothing would actually happen as a result". (Beta, SN3)

5.4.5 Organisational hierarchy

Participants agreed that policies, procedures, and systems were in place within the organisation for raising concerns about patient safety. An organisational hierarchy shaped these with Beta ward's matron pointing out that there was a clear line of accountability and a set process for staff at ward level to raise issues which she considered important.

Macro level staff attributed system failures to ward managers who compromised patient safety when there were operational pressures by over-relying on agency staff, failing to plan proactively for peak periods, and failing to communicate issues that might threaten patient safety:

"It's all about planning. It's about organisation. It's about putting processes in place and understanding the processes and then making sure it happens...I go to the bed meetings and our Director of Operations go to the bed meetings so that's an opportunity three times a day for the shop floor staff to touch base with executive people. We encourage people to escalate and escalate if you've got any concerns." (DCN)

However, micro-level participants perceived senior managers and staff at organisational levels to be removed from the reality of the wards:

"I am getting bombarded from all sides to take this patient while I still have this patient on the ward who I'm thinking is unwell and very poorly". (Alpha, SSN3)

"...we often joke by saying things like, well the Matron should be here for a week to see what it's like. And then people might be able to see how difficult it is...". (Beta, SSN2)

Staff nurses considered that meso and macro level staff did not understand the impact of the day-to-day reality on the safety of care that ward staff could provide:

"I don't think that sometimes people are aware... perhaps people at the top don't actually have the depth of understanding of the reality of what's it's like to work in a ward currently and the decisions made". (Beta, SSN2)

There were indications of a culture of macro/meso level staff over-ruling ward staff's concerns about patient safety:

"I don't think as very junior person below them I could then go ahead and say that this was unsafe...I think the difficulty is that you would just get over-ruled again... you feel often you are being harassed even though you are trying to keep your patients as safe as possible". (Beta, SN3)

"I feel that people higher up, for them it's it is more statistics it's not the sort of day-to-day things that they go through..." (Alpha, SN1)

Boarding (whereby patients would be put into additional beds) is an example where senior staff saw this as an acceptable risk to manage patient acuity, bed capacity and staffing shortages but the associated specific safety concerns such as the lack of a cardiac monitor or oxygen in such beds would be ignored.

"And I once had a disagreement with a matron because they wanted to put a cardiac patient in that bed and I was telling them that that they didn't have any cardiac monitor or oxygen and that it wasn't suitable for a patient with that sort of a condition. And I was trying to tell them that there was no facilities and addition things like

oxygen wouldn't available or suction available in the event of there being an emergency. Unfortunately, I lost the argument and the patient still went into that bay". (Beta, SN3)

Staff working at meso level on Alpha Ward felt that there was a disconnection between the ward staff and those at senior organisational level and a lack of any structured formal or informal process for the voices of staff at ward (micro) level voice to be heard at organisational level.

> *"Lower grades of staff are not being listened to and trained to be involved in... some...during my time here, whether it's through a formal process of the CQC or it could be the Chief Executive would like to come and listen or hear staff views, things happen but they are quite intermittent they don't seem to happen on a structured basis".* (Alpha, M)

Healthcare assistants formed a significant part of the workforce in both ward areas, yet they felt excluded from the organisation's communication channels – they were not part of the "safety huddles" that took place each day as these only involved senior staff and nor were there any forums for them to have a voice in the organisation.

These differences in perspectives do not just reflect different roles and responsibilities and the experience of operational pressures but an organisational hierarchy. Notwithstanding the comments by senior staff that the Trust was a family, some micro level staff did not feel they could speak up because senior staff leaders would be dismissive of concerns. Such safety concerns were seen at macro level as an inevitable by-product of operational pressures.

5.4.6 Leadership

Leadership is key to establishing the cultural values and behaviours of an organisation (Mickan and Boyce,2018). The ways in which patient safety is thought about, expressed, and responded to was explored in interviews

and documentation. As outlined above whilst it was recognised as an important part of the organisational governance, it was not always prioritised on a day-to-day basis. Thus, whilst micro level staff would describe patient safety as frequently being compromised due to pressures, they could easily point to ways of working which they valued - team cohesion, interaction, communication, approachability- all of which might be assumed to support patient safety.

The expectation that staff should support patient safety as part of their professional behaviours can be illuminated by reference to Social Identity Theory (Tajfel and Turner, 1986) which argues that organisations depend on their employees to go beyond simply enacting their job descriptions to establishing and maintaining social norms – usually in the form of agreed-upon expectations and values. What was clear in interviews with micro level staff on both wards is a strong commitment to working together to keep patients safe.

> *"We are trying our best to try and ensure that these patients don't end up falling. So for example, we are all trying to help each other helping the nurses, and we are trying to support each other at the same time".* (*Alpha, HCA1*)

For many, their conscientiousness meant going without breaks if needed or staying behind after shifts have finished to complete tasks:

> *"I prefer to stay on and complete them rather than leaving them incomplete. I will do this off my own back. Nobody has to tell me to stay" (Beta, HCA2)*

This awareness and behaviour was however, expressed as a pride in their competence and the quality of care provided. Instances where healthcare assistant were involved in tasks such as quality monitoring made them feel engaged and valued.

> *"It makes you feel like it gives you a role, give you a purpose. It's just not that you don't already have the purpose, but it gives you an*

understanding into something that you may not necessarily be completely clear on or familiar with. I think giving somebody a role of something, it's so important...I think people do see you in a different light...Being treated as an equal, I think that's really important, you're not looked down on, you're still valued no matter who you are". (Beta, HCA3)

The reports from the Trust Board show the fulfilment of the statutory patient safety duties, however the interview participants revealed different perspectives on what constitutes leadership in relation to patient safety culture. The Director of Nursing considered that having processes within the organisation to manage complexity was vital to improving safe patient throughput.

"So we have got a policy about the complexity of the patients' needs...so they have processes in place to be able to escalate all sorts of concerns in terms of the need for additional staff." (CN)

As previously noted, staff at all levels referred to the Trust as a family but that appeared to have the effect of downplaying the importance of safety leadership because staff would become aware of safety concerns simply by virtue of knowing each other:

"The fact that we are a small hospital that in some respects, this works in our favour the culture that is that everyone has awareness of the issues". (Alpha, M)

However, as evidenced in s.5.4.4, weakness in safety reporting and communication between micro and meso/ macro levels existed. At ward level, the clinical leader, as shown in the previous section was seen by micro level participants as the shift co-ordinator. The personal characteristics of the clinical leader were considered essential in terms of its impact on patient safety. A good leader provided the necessary support, was approachable and listened to staff:

> *"The most important thing is that she is very much a people's person, she is approachable. It's just not the way she works, it's the way she approaches people... it's just the way she approaches it... it's so different from how other people might approach it". (Alpha, SN2*)

The following comment, by a healthcare assistant on Beta ward reflects the general comments made about the current leaders on Beta ward,

> *"The leaders we have at the moment are fantastic...They know what [is] going on. They are friendly. They know their job. They're well-educated. They know how the system runs. They listen to what you have to say ... perhaps to people that often get looked down on like the healthcare assistants. They don't just dismiss what I have to say even if I am wrong...They will look into it, investigate...". (Beta, HCA3)*

5.4.7 Roles and responsibilities

Data were collected in the period 2017 – 2018 before the National Patient Safety Strategy (2019) was introduced which identified the need for a patient safety specialist role who could not only combine expertise but would also be central in the organisation in escalating concerns. They are also expected to play a key role in the development of a patient safety culture, safety systems and improvement activity.

Interview participants at senior level identified the need for specialist skills relating to medical needs such as dementia specialists. They also pointed to the potential of having a distinct role that could facilitate and manage safe patient throughput. The perception of senior level staff was that those on the frontline "worked for individuals rather than the organisation" (CN) and thus the ward managers were key to patient safety. In addition to professional values and commitment to the NMC Code, the values of loyalty and commitment to colleagues were reported by micro level participants. It was the ward manager who was seen as the person who set the vision and the priorities and was respected as clinically competent

and credible but was rarely floor-bound. The need to support new ward managers was recognised:

> *"It's my job and role to support the ward managers [new ward manager on Alpha]. Having a good standard of care and good quality of care and for them to be able to manage that on their wards." (Matron, Alpha).*

By contrast, staff in both Alpha and Beta wards identified the role of the shift or ward co-ordinator as influential in contributing and managing patient safety. The shift or ward co-ordinator (a band 6 registered nurse) is the person designated in charge of the shift but, unlike the ward manager, is responsible for the managing the shift and remains on the ward. Their role is to support staff, ensure co-ordinated breaks, allocate workload and help with safe dispensing of patient's medication. In general, they dealt with all issues that arise during the shift and liaise with senior ward staff and site managers:

> *"You're working more closely with the band 6. It's because they are coordinating the care so you have more to do with them then you would have to do with the ward manager who possibly is in the office doing other paperwork... those people, as I said, are with you from the beginning of hand over to the next handover...it's important to get support from higher up but these are the people that you're going to be working with every day and every shift". (Alpha, SN2)*

Generally, the shift co-ordinator is not directly responsible for looking after a group of patients unless the area is short of staff in which case patient safety was prioritised over aspects of the co-ordinator roles such as admissions and discharges from the areas and dealing with queries:

> *"I am the named Co-ordinator on the shift, and if I have patients to look after them they are my main focus everything else will have to take second place, if there are things I need to do to keep the ward safe then that's a priority but if there are other tasks that need doing*

these will have to wait while I put my patient requirements and needs ahead of the other role of being a co-ordinator and that might mean that patient discharges may get delayed...sometimes it is possible if you have patients that are not that poorly and therefore you can manage to do both roles at the same time". (Alpha, SSN3) (Beta, HCA3).

Staff on the wards attributed the functioning of the ward and the value placed on patient safety to the shift coordinator whom they could trust and whom they saw as offering support for the workforce and helping them work as a team. On Beta ward for example, there was confidence in all the band 6 shift co-ordinators as demonstrated in the following comment by a healthcare assistant:

"In the team, that doesn't really matter which of them is in charge, they adjust the way the ward functions and we all know, and we just get on with it. We know them and they know us, and again that communication is key to things running smoothly...We are able to communicate with each other then we resolve any issues". (Beta, HCA3)

A senior staff nurse (i.e., shift co-ordinator role) on Beta ward identified the influential role that the shift co-ordinator played in relation to the impact of having agency staff in the ward. They were aware of the impact and mitigation that the co-ordinator needed to undertake to ensure team effectiveness and maintain patient safety.

"I am working tighter. I am looking closer. We are used to having agency staff here and I am allocating staff. I have to look closely to make sure they get supported well and whom I am delegating to. You have to know the team you are delegating work to, that together they are competent and that they maintain patient safety". (Beta, SSN1)

However, the macro/meso level were perceived as failing to recognise the need to train ward staff to undertake the shift co-ordinator role:

> *"There is no actual training to undertake this role of the present. I'll give you an example: there is a band five was just going to a band six, this person has had no training whatsoever even though she's probably covering because of maternity leave. She's not even had one day supernumerary". (Beta, SN3)*

Notwithstanding its perceived importance, the role of shift coordinator could sometimes be taken on by a Band 5 if no other staff were available:

> *"It will be the person who is familiar with the ward that takes responsibility for the ward. So, a lot of the time, if you are the only full-time person working when you're short and everybody else's agency or bank that means that you have to take responsibility for the ward and the co-ordination of the care since you are the only person who knows that ward well"*. (Beta, SN3)

5.4.8 Developing staff

Macro level staff identified that supporting staff development to manage patient complexity helped ensure patient safety yet external pressures on the organisation sometimes left them powerless to ensure their staff had the skills they needed:

> *"...as the profile of our patients are starting to change...things like managing challenging behaviour, or looking after patients who are cognitively impaired, so we're having to do more of that now than we were. We need to train our staff in the skills they need... and that's on top of trying to adapt to the changes that are happening anyway within the NHS and also witnessing different people coming in with different goals. There is no long-term plan and even if it starts off as a long-term plan if people keep coming in and then going it goes from being a long-term plan to being a short [term plan]." (Alpha, M)*

However, the impact of staff shortages on releasing staff for training was clearly felt and a common problem for both wards:

> *"It's important that the staff that we have need to be trained and skilled to deliver the kind of care that we now need to deliver to these complex patients...training goes down where those areas are short of staff and therefore the clinical priorities take priority over the training and development people." (Alpha, M)*

The response regarding difficulties releasing ward staff for training was to deliver more e-learning which would be done in the staff member's own time, but this was focused on statutory/mandatory training not skills development:

> *"A lot of things have gone to e-learning because they found that staff could not be released to go out of the ward to do their mandatory training in a classroom. So now it's e-learning, it will be done wherever." (Alpha, WM*)

At micro level, particularly identified by ward staff from Beta ward, staff welcomed opportunities to learn and create an environment that developed a culture of learning:

> *"If we are short staffed, we need to ensure that our priorities are right and learn from previous experiences...And then from that what they need to prioritise in similar situations. Yes, I think the staff learn from things no matter how big or small those incidents". (Beta, HCA3*)

This same healthcare assistant had become an infection control lead, the sort of role often performed by registered nurses.

> *"I go up to meetings...they tell me what needs improving and I then go back to my ward and tell them we need to do. For example, a, b and c in relation to the audits...I have seen a dramatic improvement in terms of like the audits before I was doing this role...since I've*

started to crack the whip on this, we are now getting ordered results that are often greater than 90 percent even sometimes 100 percent. So, you can see that it gives you that kind of purpose. You can see what difference you're making and also you can physically see the changes that are happening...I'm going to carry on to keep those improvements happening". (Beta, HCA3)

While the Trust recognised the importance of patient safety education, it is not a priority in the face of operational pressures. None of the interview participants argued for education and training as preventative of errors or part of establishing a culture that has an emphasis on risk and improvement or solution development.

5.5 Outputs (safety metrics)

Outputs are the outcomes of in-patient transformation at ward level, including safe patient care, which can be monitored and measured via the organisation's safety metrics data. This section outlines the available metrics related to patient harms and safety. This is important to demonstrate the patient safety culture. Safe patient care is an important output. Incidents, errors, and harms accrued during in-patient throughput are viewed as undesirable attributes of the system, its processes, and its staff. These are recorded as a measure of the effectiveness of the organisation in order that there is open learning enabling the organisation to improve its performance. The output data sources are listed in Table 4.1 chapter 4.

Prevalence data of monthly audit data were extracted from Trust minutes to identify the percentage of harm-free care (HFC) of patients within the hospital and comparative percentages for both Alpha and Beta wards (Table 5.5 below). The NHS Safety Thermometer is a tool which measures and monitors for harms name namely pressure ulcers, catheter-related urinary tract infections (UTI), falls and venous thromboembolism. The Trust stopped recoding information relating to the NHS Safety Thermometer after March 2018. Data were obtainable for December 2016

so is included below to provide a slightly longer perspective than would otherwise be possible.

Table 5.5 Safety Thermometer Audit Data per Month: Percentage of harm-free care

Month/Year	Host Trust Percentage (%) Harm free care	Alpha ward Percentage (%) Harm free care	Beta ward Percentage (%) Harm free care
December 2016	97.20	96.15	75.00
January 2017	94.90	96.30	85.19
February 2017	91.60	96.43	73.85
March 2017	91.57	100.00	85.19
April 2017	93.25	96.15	84.62
May 2017	92.39	92.00	81.48
June 2017	93.47	92.86	85.19
July 2017	93.23	96.00	73.00
August 2017	93.23	100.00	70.00
September 2017	92.37	78.26	76.67
October 2017	93.47	93.10	80.00
November 2017	94.76	92.00	87.50
December 2017	97.20	96.15	75.00
January 2018	96.01	96.15	75.00
February 2018	97.60	100.00	96.15
March 2018	92.10	100.00	84.62
April 2018	96.90	Not reported	Not reported
May 2018 onwards	Not reported	Not reported	Not reported

Table 5.5 shows that levels of harm-free care across the whole Case Study Trust ranged from 91.57 – 97.6 % (mean = 94.19 %). The range for Alpha ward was 78.26 – 100 % (mean = 95.10 %). The range for Beta ward was 70.00 – 96.15 % (mean = 80.53 %). The World Health Organisation (WHO) (2019) estimated that 10% of all patients in the UK are harmed during their healthcare experience. Interpreting this data shows that between December 2016 – April 2018, the host Trust overall was achieving better harm-free care than the WHO estimated, but both

wards were performing worse. The data also show that achieving 100% harm-free care is possible (Alpha ward achieved 100% harm-free care on four occasions over 16-months). However, the Safety Thermometer is only a one-day a month snapshot (Figure 5.5) so does not give a full picture of patient safety and only a snapshot at a particular time.

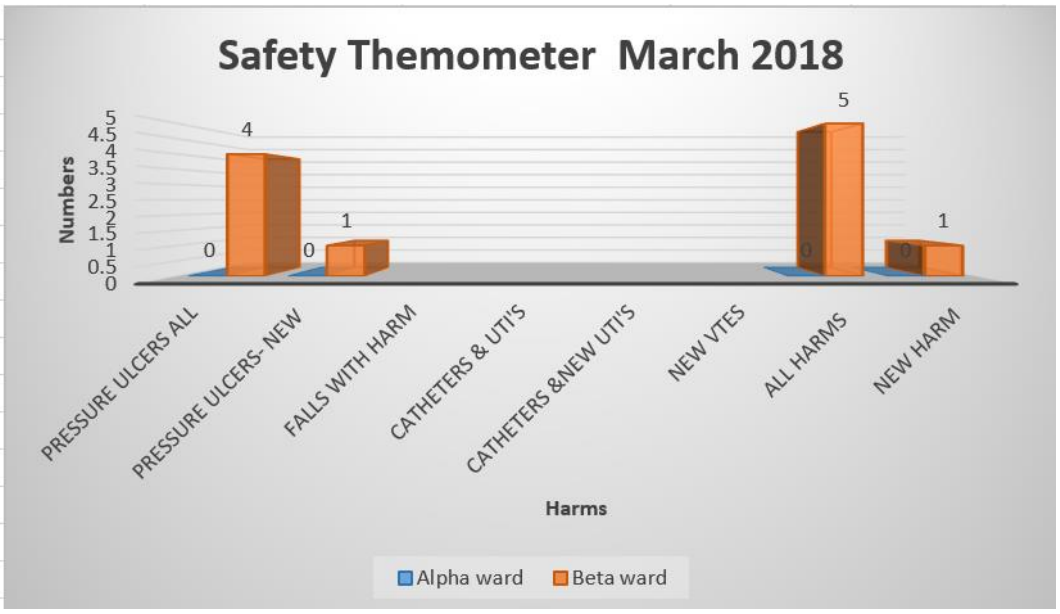

Figure 5.5 Safety Thermometer Data for March 2018 Alpha & Beta wards

The Case Study Trust also collected its own safety metrics including medication errors. Five categories of medication error are recorded: no harm, low harm, moderate harm, severe harm and death. Figure 5.6 shows Alpha had eight errors (six resulting in no harm, and two resulting in low harm). Beta ward had four errors, all of which resulted in no harm.

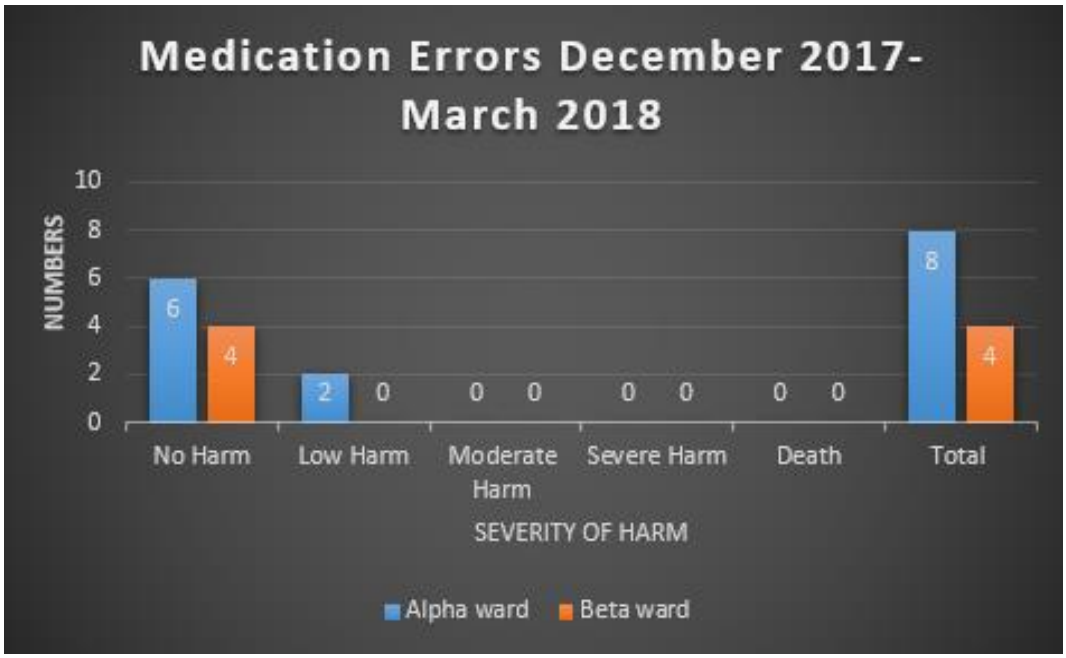

Figure 5.6 Number of Medication errors on Alpha & Beta Ward December 2017 - March 2018

There are clear limitations in the safety metrics data. For example, according to the Safety Thermometer data, Alpha had recorded a total of one patient harm and Beta had recorded a total of six patient harms over the four-month period. These harms comprised of mainly pressure ulcers (both new and existing) incidents on Alpha ward (n=1) compared to (n=2) on Beta ward and hospital acquired catheter-related urinary tract infections (UTIs) with Alpha ward (n=0) while Beta ward recorded (n=4) of harms. It must be noted that Alpha ward had 25 beds while Beta ward had one less at 24 beds although both were medical wards. In addition, it must be noted that Alpha ward had more acute patients while Beta ward had more frailty; these differences could account for the differences in harms and the category recorded.

However, the Trust's own safety metrics data collected in addition to the Safety Thermometer data revealed that in relation to hospital acquired pressure sores for the same time-period Alpha ward recorded 9 pressure ulcers while Beta ward had 7. The CQC (2018) inspection report for the Trust noted "inconsistent" use of pressure ulcer risk assessment. In relation to falls, Alpha ward had 2 while Beta ward recorded 4. In addition, for hospital-acquired catheter-related urinary tract infections show that

Alpha and Beta wards recorded 7 infections each (possibly a reflection of the “poor adherence” to infection control policies noted in the CQC (2018) report).

Comparing both safety metrics data (the Safety Thermometer and the Trust’s own metrics) for the same period provided different results. In terms of overall harms, the Safety Thermometer data for the 4-month period (December 2017 – March 2018) recorded 1 harm for Alpha ward and 6 for Beta Ward. The mean percentages for harm-free care (see Table 5.5 above) for both Alpha and Beta ward for the same 4-month period, are 98.08 % for Alpha ward and 82.69 % for Beta ward. Therefore, the data could be interpreted as indicating that Beta ward was performing more poorly than Alpha ward regarding patient safety. In contrast, the Trust’s own safety metrics showed both wards to have each had 18 episodes of patient harm. The contradictions in the two data sets demonstrate the inadequacies of the data collection systems as the former (the Safety Thermometer) relies on just a snapshot of one day per month while the Trust’s own metrics provided a more accurate indication of actual harm.

The Trust’s own safety metrics also collected data on medication errors; data for the same period indicate that Alpha recorded 2 ‘low’ harm incidents occurring while Beta ward recorded no harms occurred giving a total of overall patient safety harms during the data collection period of 20 on Alpha ward and 18 on Beta ward. The CQC (2018) inspection report stated that Trust policies relating to medicines were followed well.

That the Case Study Trust felt it necessary to collect its own metrics was indicative of the weight attached to accurate recording and having a more complete picture. Despite the limitations of the Safety Thermometer metrics, the data available for each month of the study show a clear association with staffing levels as shown in Figure 5.6. On both Alpha and Beta wards over the period of the study, when staffing levels were higher, better safety measures were recorded.

Figure 5.7 Staffing level metrics December 2017 to March 2018

In interviews, staff at all levels reported a positive safety culture in the way things are done although other data from the staff survey (s.5.7) and interview data about pressures and priorities (s.5. 5.1 and s.5.5.2) was in contrast to this:

> *"...our safety culture...it's at the heart of everything we do, our policies and procedures" (DCN)*

This was reflected at ward level:

> *"...is important to keep the patient safe...it's also about being honest when you make mistakes and that you learn from them so that they don't actually happen again" (Beta SN3).*

How patient safety is perceived and discussed at Board level is an indication of a positive safety culture. All the Trust Board minutes from November 2017 – November 2018 were reviewed with those from December 2017 – March 2018 interrogated in depth as this was the time period for interviews and ward metrics. Patient safety is reported at Trust Boards and a report is received from the Patient Safety Committee. The number of events is reported and whether they have been responded to

within an appropriate timeframe. However, only two of these minutes referred to planned or implemented actions, with one of these also referring to the factors that had contributed to the occurrence of the ‘Never Events’ (NPSA, 2011). There was no recording in the minutes of any board discussion on Never Events nor any requests for information about the actions needed. The focus of the Board was, at times, distracted; in the March 2018 Minutes, the word count relating to patient safety was 269 words whilst there were 201 words describing one particular member of staff's experience and how rewarding her job was. Although a general comment in relation to education and training was made in the March 2018 minutes, the minutes from 25 January 2018 did refer to Human Factors training which has been identified as critical to understanding and responding in safety critical industries (Dyer and Scagnoli, 2020) and is strongly encouraged by the CQC (2018b) who recognise that the majority of Never Events “require human factors-based solutions”. Yet the Chair of the Patient Safety Committee stated that the Human Factors training was not well attended. In addition, the February 2018 Trust Board minutes identified the need for a review of the efficiency and function of the Quality and Safety Committee but provided no indication of the reasons for the review.

5.6 Feedback on performance

Successful organisations reflect the “norms, rules and values of key external stakeholders” (Mickan and Boyce, 2018, p.168). The Care Quality Commission (CQC) is an important external stakeholder whose feedback on performance shapes NHS Trusts’ behaviours. The Trust’s rating in relation to the safety of services went down in 2018 from the previous 2014 report. Across all four key areas of being safe, effective, responsive, and well-led, the Trust, along with 174 others (CQC, 2018), was therefore given an overall rating of ‘requires improvement’ and only the fifth category of ‘caring’ received a good rating (CQC, 2018). The 2018 CQC report also showed a decline in safety in urgent care, surgery, medicine and maternity and highlighted areas related to infection control compliance monitoring

and adherence to Trust policies as ‘requiring improvement’. The report identified problems with leadership including a lack of clarity regarding the structure among executive teams, middle managers and staff. It also highlighted lack of a nursing strategy, in terms of the need for key nursing metrics to be included in the performance-reporting framework, learning to be shared across the Trust and the need for staff to follow Trust policy in reporting incidents.

Data were extracted relating to the Family and Friends Test. The mean response rate during the data collection period (December 2017-March 2018) was 8.45%. The FFT asks whether the respondent would recommend the Trust services to family and friends. The monthly returns in the data collection period ranged from 95.5%-98.2%.

Complaints for in-patients were extracted from Trust minutes from January 2017 - December 2018. The data revealed that for this period of time that in total there were 170 complaints received by the Trust overall and the medical directorate (n=31) had the highest number of complaints related to care (n=18) followed by communication (n=6), clinical treatment (n=5) attitude (n=2) although none was identified as serious. The medical directorate. Although feedback from HealthWatch reports and patient reviews from the CareOpinion website refer to care quality and the pressures on capacity, the impact on patient safety was specifically mentioned in only three reviews:

“one of the most frightening experiences we've ever had”

“...chaotic...No proper handover between shifts...”

Freedom to Speak Up (FTSU) concerns are reported quarterly. The numbers are small but patient safety is mentioned in both quarters of the data collection period (n=5 and n=3) however no details were provided about the nature of these concerns.

The annual NHS staff survey provides an important insight into attitudes and feelings towards reporting and acting on patient safety concerns in the

NHS and how safe staff feel to speak up on these issues. In the data collection period (Autumn of 2017) staff responded with 56% of staff said they would feel secure raising concerns about unsafe clinical practice and 61.7% of staff (dropping to 57% in 2018) said that their organisation would address their concern. That 44% of staff felt they would not feel secure raising concerns about unsafe clinical practice is an alarming figure that would not be considered acceptable in safety critical industries such as aviation. Another section of the survey focused on workforce pressures and staff at this Trust exceeded the national response rates with 73.6% (2017) and dropping to 68% (2018) reporting that they could deliver the quality of care they aspired to.

Patient safety is reported in the Trust Board minutes in terms of reporting safety metrics, incidents and details about specific metric results or statements related to safe care. However little discussion is recorded within the minutes to identify what learning or action plans had been enacted upon. Overall, more attention was placed on metrics reporting than interpretation and remedial or preventative action planning.

5.7 Chapter Summary

The host Acute NHS Trust had seen its CQC ratings slip since 2014 but overall maintained a generally good reputation within its local geographical community. The Trust had seen changes in the local population demographics with increasing numbers of over-65-years old and a diversification in local minority ethnic groups. Like many comparable Trusts, it was running a financial deficit. It had higher than average nursing vacancies.

The challenges of increasing demands for additional beds coming from emergency departments, necessitated more capacity and increased flow of patients to ensure that the Trust met targets set by the Department of Health. Both Alpha and Beta wards had a high patient need resulting from increasing complexity and acuity, which exceeded the number of actual staff available to meet these needs over the period of this study. The

impact of the general NHS cuts (which contributed to the Trust financial deficit) accompanied by local issues were felt most keenly at ward level. Micro level staff on both wards felt that senior management at meso and macro level were removed from the reality of ward life and the impact that financial cuts and pressures had on ward staff.

The safety metrics that are routinely reported showed some patients on both wards during the study period had experienced harm (falls, pressure ulcers, medication errors, infections). Explanations for patient harms and errors can be attributed to patient-related characteristics such as level of acuity or demographic characteristics, health-care professionals' knowledge and beliefs and staffing levels. Bed occupancy on both wards was running at greater than the official ward capacity through the employment of 'escalation' beds which lacked necessary supporting equipment or flexibility in staff resources. Beta ward, the frailty ward, had a greater unmet need for nursing hours per shift but a more stable workforce and used fewer bank/agency staff than Alpha ward. Increased workload pressures and staff shortages resulting from failure to both recruit and retain staff had negatively impacted both wards.

The system was under pressure but the response of the organisation to manage the pressures were actions that micro level staff deemed unsafe e.g., "boarding" and cohort nursing. At macro level, development of specialist nurses was identified as key to managing the pressures of increasing patient complexity but releasing ward level staff to attend meetings or additional training was acknowledged as problematic due to staff shortages. Staffing shortages and workload pressures were reported as having negatively impacted on the wellbeing of staff, particularly newly qualified staff and healthcare assistants. Junior staff on Alpha ward particularly felt the additional pressures and described feelings of being overwhelmed.

The comparison of two units of analysis enabled a more complete picture to emerge of the factors influencing a patient safety culture. Although both wards had similar levels of incidents or harms, micro-level participants on

Beta ward (which had fewer staff but more frail patients) appeared from their interviews to be better equipped at coping than participants from Alpha ward (which had more acutely unwell patients). This was attributed by Beta ward staff to good teamworking which mitigated the impact of the additional demands by agreeing between themselves what was to be done or what could be left undone in order to keep all patients safe. They had developed a culture of learning and giving additional responsibility to individual staff which increased the sense of engagement and of feeling valued in comparison to those on Alpha ward. On both wards, a major contributor to patient safety was identified as the role of the shift co-ordinator. The shift co-ordinators appeared to be more influential on how care was being organised and delivered and patient safety maintained than the ward managers who were seen as disconnected, and office based.

Both wards showed however, that they were dominated by an organisational hierarchy in which so long as assurance was being given, day to day safety concerns were sometimes ignored. Weak safety leadership at macro/meso level was evidenced by a divide in the data over the extent to which the meso/macro levels were aware of, or fully understood, the realities of ward-based pressures. There was an absence and engagement of ward staff voices at organisational level with a reliance on traditional hierarchical management processes. Those at meso and macro level relied on ward staff reporting all issues related to quality of care including harms and incidents in compliance with the Trust's mandatory measuring/reporting system. Meso/macro level staff indicated a belief that Datix requirements were being met. In reality, shortages of ward staff and consequences of this were not always reported (or immediately reported) due to increased workloads and pressures of everyday practice and short-term workarounds (i.e. cohort nursing). Micro level participants selectively reported risks as result of the challenges of providing care with inadequate staff-patient ratios. Staff at micro level on Alpha ward considered there was little point in reporting issues, because of their sense that completion of Datix did not result in any changes. Both Alpha and

Beta ward staff identified that aspects of care that were not measured were not always considered a priority by those at meso/macro level and patient safety was being negatively affected.

The values and behaviours that might be expected to demonstrate a positive safety culture were not strongly evident. At meso/macro level, there was an expressed willingness to accept clinical compromises and potential threats to patient safety, such as escalation beds and cohort nursing, in order to balance finances. In contrast, the interviews with staff on the wards revealed that being a professional and its associated values and behaviours of conscientiousness, loyalty, teamwork, was of more influence on both wards than the organisational patient safety culture presented by participants at meso and macro levels. Nurses' professional and social (ward team) identities are closely linked (Willetts and Clarke, 2014). At ward level, delivering harm-free patient care and meeting their professional duties of care were significant concerns. Team working, engagement with staff, feeling supported, a sense of togetherness, and having knowledgeable shift co-ordinators were identified as key to patient care.

The next chapter will discuss these findings through the lens of Open Systems Theory. The findings presented in this chapter have shown how the environment (e.g. organisational size, patient acuity, and resources and staffing), its structure especially its degree of centralization, all affected its effectiveness in reducing patient harms and errors. Chapter 6 will discuss how the organisation responded to these external factors and illuminate what is needed to establish a culture with its values and behaviours promoting patient safety.

Chapter 6 Discussion

6.1 Introduction

The capturing of insights at all levels of an organisation (micro, meso, and macro) from within the host Trust case study site, enabled aspects of its patient safety culture to emerge such as how clinical compromises were used to address the day-to-day realities of throughput pressures, notwithstanding the potential threat to patient safety. This chapter examines the study's findings, presented in Chapter 5, and frames the discussion of patient safety culture (as defined in Chapter 1, s.1.1.3) through an Open Systems Theory framework (as presented in Chapter 3). This allows a more nuanced insight into relationships between micro, meso and macro level to emerge. These would not necessarily be the same across other Trusts but offer insight into what patient safety culture looks like (s.6.3) and the barriers to (s.6.4), and enablers of (s.6.5), a positive culture.

Chapter 5 reported some of the available evidence relating to the acute Trust's patient safety record. Understanding in safety critical industries has shifted from finding a human component as the source of failure (Hollnageal *et al.,* 2015). Instead, understanding safety points to the need for analysis of the decisions and actions of individuals and groups embedded in the larger system that provides resources and constraints. Improving patient safety culture is a key element of the NHS Patient Safety Strategy (NHS England and NHS Improvement, 2021). Its terminology of "Support the development of a safety culture in the NHS" (NHS England and NHS Improvement, 2021, p.7) is arguably indicative of concern at a national level that patient safety culture is seriously underdeveloped across the system. An identified research need is a better understanding of the role of management and leadership in creating cultures of safety and improvement, and the organisational factors and systems needed to support this. More research is also needed to

understand why health and social care staff vary in their compliance with safety behaviours.

Organisations need to satisfy the scrutineers in the wider environment as to how well it is meeting its goals of successful transformation in order to survive (Boddy, 2008). As identified earlier in Chapter 3 (s.3.3.1), a criticism of traditional organisational theories is that they view organisations as purely autonomous and isolated from external pressures; these 'closed' theories fail to take account of contexts and the impact they have on internal systems (Brett, 2016). There has been a failure in the literature, and empirical research to date that explores how complex organisations, like NHS Trusts, operate in wider social and economic contexts, managing these external constraints. Viewing the acute Trust through an open systems lens is to see it as both organic and dynamic – involving interactions between internal elements and the external environment. Understanding the dynamic relationship between the system's layers (macro, meso and micro) and the input, transformation mechanism, and output, as well as their relationships with the environment and how these interact with each other can help to illuminate what is influencing the patient safety culture.

Safety culture can be seen as a subset of organisational culture (Feng et al., 2008) and this study shows the relationship between the Trust and its staff and their behaviours. A positive safety culture is one where safety is given a high priority within an NHS organisation which can be seen as an indicator of the quality of care within that organisation (Manley and Jackson, 2017; Sammer, *et al.,* 2010; Vincent *et al.,* 2013). This chapter discusses the findings on patient safety outlined in Chapter 5 as currently measured and expressed through lower level of adverse events, medication errors and increased compliance with reporting adverse events (Hofmeyer, 2013, Braithwaite et al., 2017). It reveals that patient safety culture is more about measurement of events and avoidance of specific measurable harms than it is about a clearly articulated set of values about safety.

The chapter shows that there are several obstacles or barriers to establishing a positive safety culture in which a Trust would have high awareness of threats to patient safety and low tolerance for harm which is promoted across the organisation at all levels. This would manifest itself in evidence of inquiry and explanations for when safety is compromised and corresponding remedial actions. However, Chapter 5 (s.5.3) showed that the documentary evidence did not support this. As well as the turbulent external environment, the management of throughputs is seen at macro level or the blunt end of the system as a series of compromises between the demands and the resources available. These are not similarly viewed at the micro level or sharp end of the system which governs the expression of errors and harms and the staff do not view patient safety as being prioritised by the senior management. Evidence from Chapter 5, (s.5.5) is that “deviations from the rules” were occurring both at ward level and as a result of meso/macro level decisions to address organisational input challenges (Chapter 5, s.5.4) and thus “migration” into “unsafe practice” seemed to be occurring (Amalberti et al., 2006, p.i69).

Chapter 2 showed that a positive patient safety culture (Alsalem *et al.*, 2018) can be assessed in management commitment to safety, safety systems, communication, teamwork, nonpunitive response to errors, and leadership. Findings in relation to these enabling factors (Chapter 5) for a positive patient safety culture are examined and evaluated in s.6.5 which reveals how patient safety culture at micro level was more strongly influenced by professional values than by the organisational culture. It explains how, according to front line participants, a key micro level staff member, the band 6 shift co-ordinator, was influential in ensuring harm-free patient throughput on both wards, rather than anyone in a more senior role, such as a ward manager or matron.

6.2 Open systems theory applied to the case study Trust

Open Systems Theory allows the complexity of healthcare systems to be understood in relation to patient safety culture whereas frequently in the past the focus has been on individual actions and fault. Reliance on patient safety and organisational metrics to record inputs, harms and risks means the wider context can be missed. Systems in healthcare are complex and there are dynamic interactions between people, tasks, technology, environments (physical, social, and cultural), organisational structures and external factors. The system conditions (such as patient demand and acuity, staff capacity, available resources, and organisational constraints) and goal conflicts (such as the frequent pressure to be efficient and meet performance targets) influence and are influenced by the nature of interactions as shown in the depiction of the Trust as an open system in Figure 3.2.

What adopting the Open Systems Theory framework is able to highlight are the interacting relationships and dependencies between people and other elements of the system from which emerge safety performance and outcomes. Rather than focusing for example, on reporting systems for incidents (s.6.4.1) or learning from events (s.6.5.4) which are components in isolation, viewing the Trust as an open and dynamic and complex system sees the relationship between all its components. Complex systems consist of many dynamic interactions between people, tasks, environment, and organisational structures (Best, *et al*., 2012). The nature of the interactions results in adaptive responses (Dekker *et al.,* 2011). These cannot be seen in simple linear terms, or cause and effect because of the complexity and dynamism of the system. Similarly, understanding a dynamic and complex system demands that the focus in not on any one component or individual but how they interact. Hence, the dominant focus in patient safety improvement on single incident analysis is not always helpful. Figure 6.1 revises the representation of the Trust as an open system showing the perceived barriers and enablers to a positive patient safety culture.

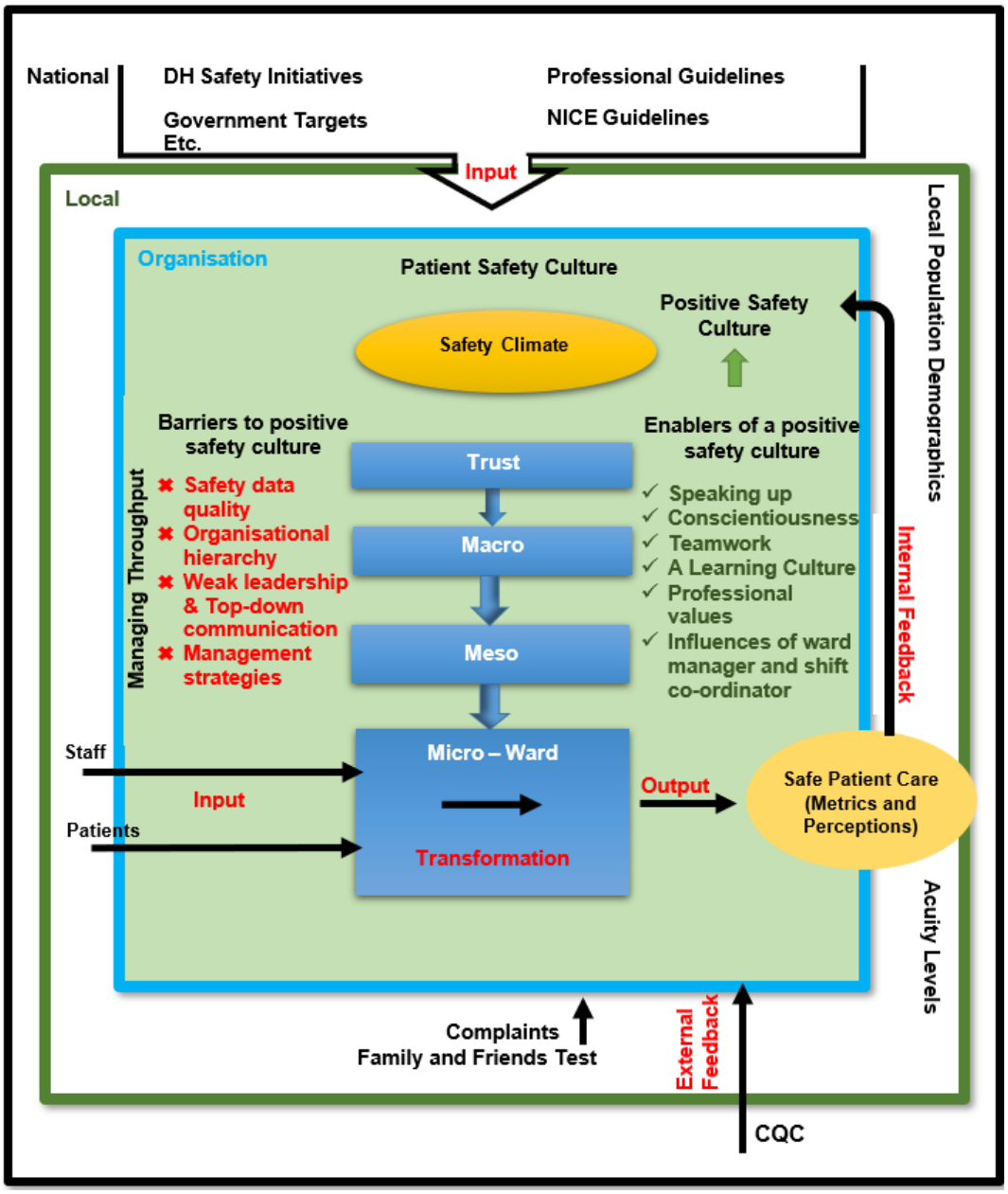

Figure 6.1 Revised Open Systems Theory figure

Although the literature suggests systems can be tightened to prevent error (e.g., Hollnagel and Woods, 2008**),** much patient safety literature conceptualises healthcare organisations as discrete entities so although it recognises that there are uncontrollable external pressures, there is a lack of insight into how being part of a wider system such as the NHS creates additional pressures not faced by more contained organisations. Through the lens of Open Systems Theory, it shows that external factors (such as the Department of Health and Social Care (DHSC), the wider NHS and the

CQC), directly influence organisational (macro and meso levels) priorities. Staff adapt to these system conditions and goal conflicts in different ways utilising the feedback loops that provide information in relation to the performance and organisational behaviour of the system (Katz and Kahn, 1978). At the macro level, staff balance competing demands. The resilience of the system shown in the safety metrics data (outcomes) is indicative in their view, of the effectiveness of their compromises. Those at the micro level show adaptive responses to the situations faced at the time but their perceptions of the real-time safety situation are given less credence.

Open Systems Theory sees systems as attempting to achieve equilibrium through transformation processes. The organisation and wards faced turbulence outside their control when managing high workload with low staffing and there was clear separation between macro/meso and micro levels in relation to patient safety culture and how to manage in-patient throughput. At macro/meso level, equilibrium or balance was achieved if there was adherence to financial planning and safety metrics did not show risk. S.6.4.4 explains how input pressures were managed through staffing allocation, cohort nursing, bed boarding. At micro level equilibrium was reported as less achievable with staff reporting unacceptable compromises on quality of care. Anchoring the study in Open Systems Theory revealed that micro level staff did not see the bigger picture and a driving influence was their fear that they might harm someone hence their aversion to compromised standards.

Within the system itself, there are constant feedback loops in which decisions, and the perceptions of those decisions, affect further responses. Alqattan *et al.'s* (2019) review identified feedback as one of twelve influences on patient safety culture. Understanding these feedback loops, perhaps through process mapping (Antonacci *et al.,* 2021) can help to explore how, and how well, the system is working. Figure 6.2 illustrates an example of feedback loops showing how the different levels respond to what they are seeing and experiencing and how they adapt to that.

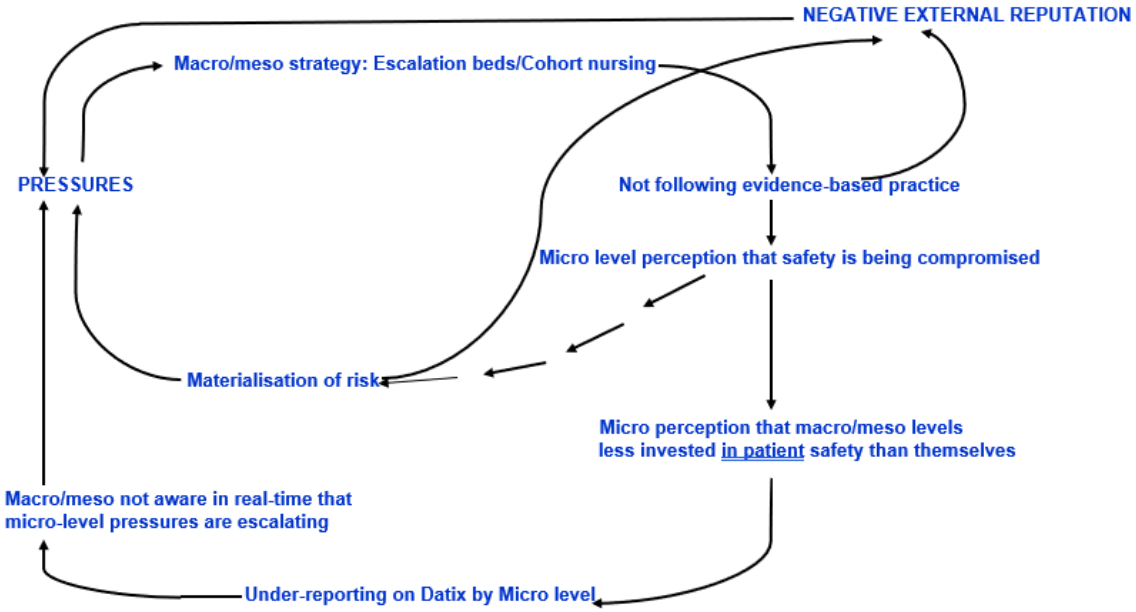

Figure 6.2 Example of a feedback loop

Seeing the Trust through an Open Systems Theory lens, casts the organisation as dynamic and subject to external pressures from national policy and local demographic change together with the requirement to respond to external feedback. Whilst the expectation is that patient safety should "percolate in the attitudes, beliefs, values, skills and practices of health worker and managers" (WHO, 2021, p.19) across all levels as represented in Figure 3.4, this study has shown that the system is dynamic, and its form and structures can act as a barrier to the attitudes and beliefs necessary for a positive patient safety culture. Additionally, this study has shown that the values and attitudes regarding patient safety culture are different at different levels and that patient safety culture is experienced, and manifested, differently. In an open system, transformation processes manage people and resources to create desirable outputs, in this case, a positive patient safety culture. However, this case study has revealed that those transformation processes themselves e.g., cohort nursing, actually act as a barrier.

6.3 Patient safety culture

Many definitions of culture (e.g. Schein, 2004) have an emphasis on the shared basic assumptions, norms, and values and repeated behaviours of particular groups into which new members are socialised, to the extent that culture becomes 'the way things are done around here'. This sense of "sociological citizenship" (s.1.1.5.2), "requires that patient safety culture has to percolate in the attitudes, beliefs, values, skills and practices throughout the organisation at all levels, including health care workers and managers (WHO, 2021, p.19)."

Based on Reason and Hobbs (2003), safety culture forms a subset of organizational culture relating specifically to the values and beliefs concerning health and safety within an organization. As was seen in Chapter 2, organizations with a positive safety culture are characterized by communications founded on mutual trust, strong leadership, shared perceptions of the importance of safety, and confidence in the efficacy of preventive measures. In effect, there would be strong, patient safety-supporting relationships and behaviours which percolate all levels and parts of an organisation.

All interviewees (micro, meso and macro level) expressed views that a positive patient safety culture was important. However, this study has shown that there were not shared perceptions about the importance of safety at the different levels of the organisation with ward level participants disliking managers' expectations that they should find acceptable care rationing, cohort nursing and escalation beds. The safety culture as expressed by management level was a subset of the organisational culture, which was one responding to, and buffeted by, environmental pressures and which embedded systems and processes to monitor and maintain patient safety (see s.5.4.1).

Feng *et al*.'s (2008) concept analysis concludes that the patient safety culture is not only the effect of 'top–down' i.e., the organisational culture

but also the effect of ‘bottom–up’ communication and the product of nurses’ belief systems. In this study, participant accounts indicated that the culture at ward level was influenced by nursing values (see s.6.5.5), which prioritised safe care of the patient and accountability to their profession as identified by the Nursing and Midwifery Code (2018, p.5) over the (financial) interests of the organisation. Neither the organisational nor ward culture was dominant. Whilst ward level participants disliked managers’ expectations that they should find care rationing, cohort nursing and escalation beds acceptable they nevertheless were driven by managers’ expectations and safety priorities. The impact of the values and behaviours espoused by managers and how they are lived and seen (in the behaviours, attitudes, and service delivery activities i.e., resource management at macro and meso levels) was evident in this study (Chapter 5, s.5.4) leading to a perceived hierarchical disconnect (see s.6.4.2 and s.6.4.5). This disconnect or separation in turn potentially had an impact on the patient safety as micro level staff prioritised care over reporting when under pressure (see Chapter 5, s.5.4.4).

Both wards had their differing patient safety cultures. Alpha and Beta wards had their own ward identities and ward-based culture, being actively created by their intra-relationships with the wider organisation and in their own teams as well as how they functioned on a daily basis. Their individual ward identities and cultures had a direct impact on their approach to processes and decision-making, particularly around aspects of care delivery, and balancing this with the everyday challenges that they face. In many respects, despite the perceived disconnections between micro and macro level, both wards shared the characteristics of a healthy team culture (Mickan et al., 2005; Manser et al., 2009; Riley et al., 2010). Heled et al., (2016) have explained that teams develop common psychological structures that then represent their shared attitudes, values, and motives which, in the context of both wards, were grounded in professional nursing values and shaped their patient safety behaviours. In many respects, the ward staff viewed patient safety more as an event than a product of organisational patient safety culture; it was something they

did their best to ensure in relation to individual patients. This perception may reflect an emphasis reported in other studies upon the avoiding, and reporting, of adverse ‘events’ (Conner et al., 2020; Labrague et al., 2020).

A positive organisational culture is fostered when staff are encouraged to feel like a family (Kinjerski and Skrypnek, 2006). The study site’s organisational identity, as described by meso and macro level participants was seen, in part, as generated from the numbers of the local community that are employed within the hospital, in various roles and capacities. Senior staff explained this as partly due to generations of local family members being employed by the Trust, giving it a ‘family feel’ characteristic with shared family values. Hendy and Tucker (2021, p.694) argue that a “publicly shared organisational image” can inhibit dissent leading to a culture of silence in the face of risks to patient safety. Potentially, wishing to maintain ‘friendliness’ could lead to a failure to report concerns although no evidence of this was found in this study. When frustration with the organisation increases (for example due to the pressures identified in Chapter 5, s.5.4) the sense of a family-style culture may, however, disappear (Hülscher, 2019).

How the organisation is perceived externally can have an impact on the patient safety culture. Organisational reputation impacts on retention and recruitment of staff as seen in the US Magnet hospitals (Aiken et al.,2003; Mira et al., 2014). Social reputation of hospitals was identified in a study of Spanish hospitals, as that perceived by patients and relatives and, in terms of patient safety, means having safe clinical environments in which few clinical errors occurred (Mira et al., 2014). Local (positive or negative) media coverage can also influence to create or destroy a hospital’s safety reputation and have subsequent impact on Trusts and the confidence that the local population has in a quality service provision as explained in Chapter 1 (s.1.3 .3) so some hospitals actively manage their online reputation (Medina-Aguerrebere, 2020). In this present study, the data suggest that generally the local population saw the Trust as having a good reputation. Following their meta-analysis of studies conducted in the USA

(included in Chapter 2, s.2.4.5), Sammer et al., (2010) argued that wider external community perceptions of the safety culture of an organisation impact on those within that organisation. However, neither of the UK-based systematic reviews (Elmontsri et al., 2017; Alqattan et al., 2019) reported on external perceptions of organisational safety culture. Trust Board Minutes conveyed a positive perception of the organisation, a phenomenon reflected in the communication strategy espoused by at least one other NHS Trust which was to "protect and enhance the reputation of Calderdale and Huddersfield NHS Trust" (Butterick, 2011, p.28). Concern for individual and organisational reputation was one of four factors considered in the framework for deciding whether to reconfigure specialist neonatal services in Bristol (NHS England and NHS Improvement, 2019).

6.4 Barriers to a positive patient safety culture

Patient safety culture consists of objective aspects such as organisation's behaviours and practices related to patient safety, and subjective aspects such as beliefs, values, and attitudes about patient safety. This section discusses the ways in which the macro level impacted on patient safety culture through its structures, style of leadership and communication and the strategies it adopted to manage throughput and the external pressures.

6.4.1 Safety data quality

At organisational level, patient safety culture was shown to relate to the measurement of events and metrics rather than a set of values. The Board Assurance Framework (BAF) refers to how an organisation's "key strategic objectives, risks, controls and assurances" are recorded and reported to the Trust Board (NHS Providers, n.d.). Chapter 5 outlined some of the patient safety metrics that report on never events, the Safety Thermometer (falls, UTIs, pressure ulcers and medication errors) with additional data relating to pressures that create potentially harmful conditions such as staffing levels and skill mix, patient acuity. These outcomes were chosen in order to illustrate how the extent to which the Trust prioritised and

responded to patient safety. Publicly-available Trust documents failed to report when the organisation's own patient safety criteria, for example, in relation to when window bay beds could be used and for which type of patient, were breached. No risks were highlighted in the BAF. The dashboard metrics presented trends over time in relation to specific ward changes, however Trust Board minutes revealed very little in terms of actions taken or impact of strategies taken to improve metrics. As Leary *et al*., (2016, p.7) have identified through in-depth data mining, NHS organisations collect lots of high-quality data but fail to analyse it to extract "whole systems" learning. Continued organisational failure to establish action plans or implement strategies to prevent patient harm or to "sustain results" following audits was identified in the CQC (2019) report. This is an example of one of the barriers to a positive patient safety culture where the opportunity to use feedback for improvement, as shown in Figure 6.2 was not utilised. A shift away from using safety culture indicators (metrics) as a means of assessing organisational performance is evident in the NHS Patient Safety Strategy (NHS, 2021, p.5).

Incidents are expected to be reported in the electronic data system of Datix. It is important for both latent and active conditions that might threaten patient safety to be identified proactively, not retrospectively (Vincent, 1998). An important aspect of safety culture is the degree to which staff engage with the completion of monitoring and recording processes, as evidenced by measures such as the compliance data within the Datix reporting procedures, which aims to capture all clinical incidents and issues affecting safety, including the completion of regular audits. Feng et al., (2008) identified two contrasting perspectives on how patient safety culture operates within organisations, top-down or bottom-up. The data (Chapter 5, s.5.4.4) indicate that those at meso/macro level believed their top-down change from paper to electronic Datix had resulted in "very good" compliance. Although interviewees at meso/macro level were in agreement that Datix was being completed as required, it is possible that their responses were edited for 'social desirability' to present the best picture of the organisation (Heeb and Gmel, 2001). In contrast, findings

from staff nurses in both wards, showed that although they completed Datix forms, they were not always being done contemporaneously, and that compliance with completing incidents on these Datix forms particularly for issues other than direct safety incidents, was lower than it should be. This is consistent with Amalberti et al.'s (2006) model of systems migration described earlier in Chapter 3, (s.3.2.2.2) which identifies how practices such as cutting corners (i.e., deviating from the rules or standards) can develop over time within a group, leading to harm.

The interviews show the limitations of relying on such data as a picture of patient safety. Junior staff reported either not complying or at least resenting the amount of time that recording events in Datix entailed, which they considered had to be juxtaposed at times versus direct patient care. The phenomenon of "feeding the regulatory beast" contributed to failures at Mid-Staffordshire NHS Trust (Maxton and Darbyshire, 2021, e42) in part because of excessive data collection at the expense of time with patients and inadequate analysis by the organisation of the data collected. Completing Datix reports was seen in the Case Study Trust as a distraction from care and engagement in common with McCann et al., (2015) who found that that staff are often more focused on clinical outcomes rather than on service delivery targets, and therefore decide what targets they can dismiss, resulting in them seeking ways to circumnavigate systems. Macro level staff believed they knew in 'real time' when risks were present, thought that Datix forms were being completed as per process, and relied heavily upon the organisational hierarchy as a way of learning about potential threats to patient safety at micro level.

Understanding the patient safety obstacles that lead to these workarounds and safety violations by front line staff is vital to patient safety culture. Koppel *et al*., (2008) in a study of work-arounds in medication administration showed that there are different influences within the system that affect practices and behaviours, many of which were evident in this study: (1) the individual's attitude toward compliance including that micro level staff had a greater sense of being part of a team than the

organisation (see s.6.5.3) (2) information or training (e.g., lack of knowledge of safety rules) although there was no evidence of this, (3) lack of support (e.g. low staffing levels), (4) safety climate (e.g., management ignoring violations and concerns), (5) competing goals (e.g., time pressures).

The patient safety climate was, according to micro level participants, one where there was a reliance on mandatory safety metrics being measured, with the result that non-measured activities (such as making sure patients are clean and comfortable: (s.5.4.2) was not being prioritised or viewed as important by those at meso or macro level. Staff rule violations such as not completing Datix had become 'normalised' because staff at micro level saw nurses at meso/macro level 'violating' the NMC Code (2018) by not putting patients first. Amalberti *et al.,* (2006) highlight the role of social routines that progressively mask such violations. Not reported incidents are kept structurally secret although there was no evidence of negative reports on Datix being discouraged. However, Maxton and Darbyshire's (2021) Datix 'Tweets' analysis, suggests that 'Datix abuse' may be spreading across the NHS with unhealthy patient safety cultures at risk of developing. Vincent and Amalberti (2016, p.15) concluded that NHS clinical information reliability is between 81-87% therefore "it is hardly surprising that patient safety is routinely compromised in NHS hospitals and that clinical staff come to accept poor reliability as part of everyday life". The risk in the host organisation was that delayed or lax reporting by micro level staff was combining with a macro level that ignored or maintained a 'blindness' to inaccurate or lax Datix reporting helped by the absence of incidents. Violations thus become routine and tolerated. As this behaviour has become normal, it is not regarded as unusual and there is a complicit acceptance by frontline staff about the elasticity of incident reporting.

Studies of human error as described in Chapter 3 and Reason's (2006) model suggest that the healthcare Trust has the latent conditions for adverse safety through its "error provoking weaknesses" (Reason *et al,*

2001, ii21). Latent conditions are those that "can lie dormant for a time doing no particular harm until they interact with local circumstances to defeat the system's defences" (Rasmussen and Svendung, 2000, p.228). These include time pressures, understaffing, fatigue, stress, and inappropriate skill mix alongside other holes or weaknesses in the defences such as reporting or alert system inaccuracies.

Globally, hospital boards are expected to hold the organisation accountable for the provision of safe patient care (Ahmed *et al*., 2021; Leape, 2021; Roy, 2021). Trust Boards play a key role in nurturing and developing “organisational culture, strategies and systems” (Avery *et al*., 2021, p.292). The Board’s governance practices directly impact on patient safety outcomes (Ahmed *et al*., 2021). The factors of understaffing, training needs, bed pressures, were identified at Board level (s.5.4.3 and s.5.4.4), yet the Minutes failed to identify these as being latent conditions for adverse safety. For example, metrics such as the number of pressure ulcers were reported but there was no attempt to provide an explanation or improve processes. Active conditions, such as identified in Chapter 5, s.5.5), are "those that have an immediate impact and contributory effect" to harm occurring (Mejia, and Akselsson, 2010, p.30). Active conditions would also include the use of escalation beds without the necessary equipment such as piped oxygen and call bells, but these also were not recorded in Board Minutes. Whilst the Trust Board minutes do not demonstrate the denial of the existence of systemic error provoking weaknesses (Reason, 2000) they do demonstrate a ‘blindness’ and a focus on targets to the detriment of a positive patient safety culture.

In addition, the type of patient safety data recorded are ‘lagging’ (after the event) information (Patient Safety Learning, 2020). Research has identified an association between “effective oversight relating to quality and patient safety” and the skill set of Board members (Avery *et al*., 2021, p.300). In the host Trust, the Board “noted” and “accepted” reports of the various sub-committees but rarely probed for explanations or required actions to be implemented to address recorded harms or identified threats

to patient safety. Thus, in relation to shaping organisational patient safety culture, the Board neglected opportunities to perform its “critical function” (Avery *et al*., 2021, p.302) of ensuring the translation of operational data into planning, implementing, and reviewing risk and safety activities. Having patient safety as a “standing item” on the agenda provides a “critical lever” (Ahmed *et al*., 2021, p.12) but in the host Trust, the report from the “Quality & Safety Committee” was frequently tabled at the end of the agenda reflecting a finding of the Healthcare Commission (2009). Finances and whether external targets had been met received greater priority as reported by Ahmed *et al.*, 2021) along with staffing and external input pressures such as patient acuity.

A continuing problem across UK NHS healthcare is that “Organisations do not take ‘all reasonable and practical steps” to improve safety (Patient Safety Learning, 2020, p.7). One of the six foundations for safer patient care is that organisations “should set and deliver goals for learning from patient safety, report on progress and share their insights widely” (Patient Safety Learning, 2020, p.8). Within the host Trust, metrics were reported but the wider implications for patient safety culture were not considered. This issue of organisations “measuring the harm they do…instead of how safe they are” is not unusual (Patient Safety Learning, 2020, p.25). In summary, safety systems were in place to collect data that could assist the organisation in supporting patient safety, but the Trust’s patient safety culture was weakened by unacknowledged limitations in the data and failures to interrogate thoroughly what the data meant.

6.4.2 Organisational hierarchy

Inquiries on past failings of care, including at Bristol Royal Infirmary (BRI) and Mid Staffordshire, highlighted the role that leadership and hierarchy played. Singer *et al.,* (2009) found that reduced hierarchy was associated with a ‘higher level of safety climate for patients,’ as it was associated with more of a group culture and staff feel that they can approach seniors more easily and encourage an open and blame-free communication. The case

study Trust was perceived by micro level staff to have a hierarchical and distant structure. The Trust CQC 2018 report also identified a lack of clarity regarding structure amongst the executive team, middle managers, and staff.

This lack of engagement structure between senior staff and their clinical practice or ward-based staff, could work to maintain the status quo within an organisational culture through a top-down command structure but equally may mislead senior staff in a perception of safety culture being more positive than the way it is perceived by those engaged at ward level, who are undertaking direct patient care. This lack of engagement was evident in some of the interviews with ward level participants and some senior staff participants particularly when challenged about the everyday realities felt by ward staff. For example, senior staff were inclined to be dismissive about the impact that their decisions on aspects of safety was having on staff (such as escalation beds and cohort nursing: Chapter 5, s.5.4.2). This is suggestive of a failure in the 'closed loop' communication style which is a characteristic of high reliability organisations (Miller *et al.,* 2009) and the lack of which potentially poses a threat to patient safety. More concerningly, it echoes the dismissiveness that Hendy and Tucker (2021, p.699) identified as reinforcing a "narrative of silence" and "denial of failure".

While participants at meso level appeared to be able to connect with each other to get advice or support (as indicated by Beta's ward Matron), participants at micro level felt more formal traditional lines of communication were used for meso/macro level staff to communicate with them and there was little opportunity (which they interpreted as indifference: Barrato *et al.,* 2016) to have their voice heard or inputted directly to those at macro level in respect of the issues that affected them on a day-to-day basis. The expectation expressed by Beta ward manager was that staff would use organisational systems (such as Datix) and follow expected managerial lines to raise issues. The existing chain of line management processes were seen as a means of ensuring that issues

were dealt with locally and involved managers at ward and directorate level before upwards escalation. There were clear expectations that ward staff would raise issues directly with ward managers first rather than bypassing the systems in place thereby mirroring the structural disempowerment identified by Goedhart *et al*., (2017). Thus, there were "structural" and "hierarchical contingencies" (Grove, 2017, p.242) that influenced whether a positive patient safety culture was being embedded. For example, barriers to hearing the healthcare assistants' voice were not recognised by those at meso and macro level. Open Systems Theory does not foreground people within the system i.e., they are just one component of the inputs (Boddy, 2008). This study of an acute NHS Trust has shown the importance of examining the views of staff at different levels of the organisation. Their communication and relationships are part of the dynamic ways that transformation processes take place in an open system. Not capturing their views misses the opportunity to identify system vulnerabilities.

Morrow *et al.*'s (2016, p.43) metasynthesis found that "hierarchies and power dynamics negatively affect safety voice". Although meso level staff were happy to speak with junior staff on a range of issues, they did not want to be a replacement for the existing line manager. One rationale given for the failure to engage with micro level staff was over-reliance on traditional routes of communication, common within large organisations, for providing feedback to and from senior level staff. Such pragmatic approaches are often adopted for communication efficiency but can result in only filtered information being fed back by managers. A perception by ward staff was that this route was ineffective and that little or nothing changed as result of raising issues. This created a hierarchical disconnection that introduced weaknesses in the organisational aspects of safety culture through for example, not just reduced staff to staff interaction, but a lack of belief in the values being espoused, and then seen in their actions from organisational (meso and macro levels) leaders. Developing a stronger patient safety culture requires "committed and willing hospital leaders" (Titi *et al.*, 2021, p.9).

A more nuanced understanding of the differences between approaches to patient safety culture between macro and meso levels within the host Trust can be derived from application of the precautionary principle. Rather than macro level being seen as contributing to a 'vicious' cycle with those at micro level being the 'virtuous' ones (a narrative that nurses often relate about their profession: Näsman and Nyholm, 2021) the resultant difference may be whether a weak or a strong interpretation of the precautionary principle is in play. This principle is increasingly becoming part of the repertoire of legal, professional, and medical communities and government agencies (Terry, 2017). The setting of government targets or regulations to shape organisation behaviours requires organisational leaders to manage "conflicting preferences, competing interests, differences in values, and risk tolerances that range from the timorous to the adventuresome" (Soule, 2004, p.340). The underlying premises of the precautionary principle are that:

- *Lack of certain harm should not preclude action*
- *In the absence of certainty, err on the side of caution*
- *Assume the risk will materialise and must be prevented*
- *If the risk is to human life or health, precautionary measures can be taken, even if some cause-and-effect relationships have not been established scientifically (Terry, 2017, p.1214).*

The strong version sees the avoidance of harm as a rule to be followed (Petersen, 2007) whereas the weak version advocates taking a proportionate or balanced response to harm prevention where there is uncertain and speculative risk (Hughes, 2006). Those at meso or macro level are faced with 'uncertain and speculative' risk in relation to patients sitting in ambulances waiting for room in A&E, or lying on trolleys in corridors (Mwakilasa *et al*., 2017), or discharging people from wards, possibly prematurely (Yang *et al.,* 2022). The over-riding of their own criteria for the use of escalation beds or cohort nursing is indicative of a weak interpretation of the precautionary principle. Those at macro and

meso level were working to achieve system equilibrium which can be described as a proportionate response (Terry, 2017).

6.4.3 Weak Leadership and Top-down communication

Leadership style, at both ward manager level and organisational levels, has been identified as a key aspect of improving safety culture within an organisation (Francis, 2013). Morrow et al.'s (2016, p.43) metasynthesis found that "nurse managers have a powerful positive or negative affect on utilization of safety voice". According to Weaver et al.'s (2013) systematic review, perceptions of safety culture improve when there is more connection between frontline staff and those at executive level. Yet it was disconnection that micro level staff reported (see Chapter 5. s.5.4.5) and which led to expressions of disengagement affecting staff recruitment and retention on these wards (s.5.3.4). This was expressed more strongly on Alpha ward where staff talked of leaving. The Chief Nurse recognised that "people work for individuals…for the ward manager" (s.5.4.7). Given how nurse managers can influence patient safety behaviours (Morrow et al., 2016), ensuring that managers are adequately prepared for their role is important (Hølge-Hazelton *et al*., 2021). The Matron recognised the need to support and develop the new Alpha ward manager (s.5.4.7).

In contrast to Chaffer's (2020) doctoral thesis on what 'well led' meant to staff at different levels of one Trust, there was a clear sense from staff at micro level in both Alpha and Beta wards that, even where staff at senior (meso) and organisational (macro) levels had prior clinical ward experience, they would be criticised as being removed or having lost touch with the 'reality of the ward'. This led to a perception of indifference towards the challenges micro level staff were facing in relation to maintaining patient safety. "Indifference" can operate to suppress staff voice (Elliott-Mainwaring, 2022, p.11). Having a shared patient safety vision supports the co-construction of shared values and requires "working together from the bottom up and the top down, facilitating support and buy-in at all levels" (Cardiff *et al*., 2020, p.10). However, even when there are good leaders at ward manager level, this "cannot guarantee effective

workplace cultures at the microsystems level" (Manley *et al*., 2019, p.18) because the wider organisational systems, and ability to learn lessons from the past to shape the future, also have an impact. As discussed in s.6.4.1, limitations in safety systems and data interpretation weakened the Trust's patient safety culture.What was perceived to be a lack of commitment, non-participatory decision-making and low efficiency of safety management rounds were significant challenges for the institutionalisation of the safety culture in the case study Trust.

Leonard and Frankel (2010) claim that senior leaders need to stay connected to the care process and actively engage in ongoing dialogue with ward staff, (plus patients and families) as this facilitates insight into current practice realities allowing opportunities to find collaborative solutions to improve patient care. Promoting frontline ownership and system thinking at all levels helps facilitate a shared culture change of problem solving and learning-by-doing (Best *et al*., 2013). This requires senior nurses building their credibility with the nurses at the point of care by being transparent, having open and honest conversations, listening and being present to those at ward level (Leonarda and Frankel, 2010). However, 'top-down' communication is often ineffective due to a "dissonance" between the organisation's stated willingness to listen and the lived experience of those on the frontline who raise concerns (Fitzsimons, 2022, p.1).

The case study Trust did have 'senior staff walkabouts' which, according to Weaver *et al*.'s systematic review, can have a positive impact allowing executive team members to fully engage and listen to what the ward staff had to say about their daily challenges (Weaver *et al.*, 2013). However, in this study, these 'walkabouts' were seen as an ineffective strategy in relation to connecting with staff who were busy engaged in direct patient care (at micro level) or listening to their concerns, or suggestions regarding patient safety. Moving towards a more collective notion of responsibility and collective problem solving can help achieve safe high-quality care (De Brun *et al*., 2020). Only 2 of the 14 reviews included in the

Umbrella review (Chapter 2) concluded that those at unit level considered 238 executive walkarounds valuable (O'Donovan *et al*.,2018; Weaver *et al*., 2013) which suggests disconnection at micro and macro level over perceptions of the value of executive walkarounds extends beyond the host site.

Another example where the organisational hierarchy impacted on the potential for patient safety to be heard and possibly mitigated was in the use of safety huddles (Cracknell, 2017). Yet healthcare assistants formed a large proportion of the front-line ward staff but there was no single representative to express their views as a group at organisation level. There was a reliance that their views were represented by their ward manager to senior organisational staff. This structural barrier (Grove, 2017) to supporting patient safety culture could have been avoided even though senior staff nurses were generally positive about their ward manager's ability to reflect views and concerns at more senior levels. Participants at meso level considered however, that better utilisation of the many existing formal and informal routes available within the organisation for ward staff to speak directly to senior organisational staff was key to improving engagement and affecting directly upon the patient safety culture. Confidence that the communication routes upwards allowed for effective communication about threats to patient safety seems misplaced given how the reviews by Algattan *et al*., (2019), Barrato *et al.,* (2016), Elmonstri *et al.,* (2017) and Sammer *et al*., (2010) identified how important communication, reporting, and learning from errors is for harm-free care.

6.4.4 Management strategies

The relevance of staffing for patient safety culture and patient safety outcomes has been extensively studied (e.g., Aiken *et al*, 2014) and underscores the importance of work environment conditions for patient safety. In the case study Trust, decisions were made about bed occupancy and staffing allocations at senior level and the previous chapter has outlined how meso and micro level staff experienced the impact of

these decisions. Chapter 3 showed how much of the literature on patient safety in healthcare is in contrast to that relating to other industries in its emphasis on root cause analysis to identify where mistakes or errors are made. This case study has been able to show that it is the macro level that shapes the environment in which care is delivered and creates the 'latent conditions' (Reason, 2000) for errors and harms according to staff at micro level or sharp end through such practices as boarding and moving staff around clinical areas to meet needs.

Staff at micro level felt this latter strategy created problems in that staff with knowledge of patients were moved from areas creating risk to patient safety and when ward staff were moved to wards with low staff numbers this caused additional problems for existing staff and maintenance of patient safety as new staff who arrived on the ward were unfamiliar with the patients so existing staff had to oversee their work to ensure patient safety of their own and new staff's patients. This is also echoed in the literature where Ross-Walker et al., (2012) identified that managers moving nurses around is resisted by nurses who are concerned at lack of knowledge and skills for different clientele. Non-voluntary redeployment of staff creates distress to staff and can leave ward managers struggling and feeling isolated themselves (Hølge-Hazelton *et al*., 2021).

Another major strategy adopted by those at macro level as resolving the issue of managing increasing complexity levels in patients was that of developing specialist nurses to meet these needs. Meso level participants related that those at meso and macro level considered that developing individual specialist staff's competence (for example, the frailty and dementia organisational leads) was key to helping with managing complexity (Chapter 5. s.5.4.8). Macro level participants considered that utilising these specialist nurses was key to mitigating the increase in throughput of patients with complex needs at micro level. This strategy was commented on favourably when the CQC inspected in 2019 and helped improve the Trust's overall CQC scoring for medical care from its 2014 result. However, participants at micro level perceived specialist

nurses to be of little value regarding managing safe patient care throughout a shift as they float across wards and the organisation was not always ensuring ward-based staff had the skills they needed (Chapter 5, s.5.4.8). The CQC concurred with micro level staff perceptions regarding organisational failure to train adequately staff in its 2019 report and specifically commented on mandatory and other training being below the Trust's own targets.

Another macro level strategy was the placing of extra beds on wards or 'boarding' patients. These strategies had the effect of modifying the structural properties of the wards. Strategic asset management, in the form of how the estate (buildings) is used or reconstructed to meet changing demands is a frequent source of challenge for NHS Trusts (Rich-Mahadkar, 2015). Estates planning decisions should be "systematic and co-ordinated activities" (Rich-Mahadkar, 2015, p.282) but often, as a result of financial pressure, "compromised solutions" are delivered despite risks to patient safety (Rich-Mahadkar, 2015, p.200). If finances had allowed, bed capacity could have been increased or oxygen and call bells could have been added to the window bay areas where escalation beds were place, but the host Trust was built under Private Finance Initiative (PFI) thereby limiting options. Staff, in particular in Alpha ward, perceived that there were criteria set for the use of escalation beds to minimise risks to patient safety and that the senior staff at meso and macro levels were prepared to ignore these criteria if leaving patients in A&E or on trolleys would impact negatively upon the organisational reputation.

Cohort nursing which was originally an infection control strategy (Madge et al., 1992) was used at the case study Trust in the management of dementia patients. At organisational level, the perception was that cohort nursing (Chapter 5, s.5.4.3) was an acceptable compromise to manage patient throughput whilst maintaining patient safety, managing current resources and meet current clinical challenges. However, at micro level, participants on both Alpha and Beta wards acknowledged that cohort nursing assisted with meeting demands when staffing was low but was not

always a positive step to improving or maintaining safety. This compromise between managing throughput and available resources requires “a complex and delicate balance” and sometimes can result in safety breakdowns (Maurino, 2010, p.1).

Deviations from evidence-based practice and guidelines occurred because of pressures of cost and staffing shortages and Department of Health requirements to meet ambulance targets and A&E waiting times. These aspects of the external environment are not made visible in analyses of healthcare organisations as closed systems. Macro level staff responded to the external pressures defending their actions as necessary and justified, with the Chief Nurse referring to the expenditure of “public money” needing to be justified (s.5.4.3). Staffing shortages were accepted as inevitably affecting patient safety. The “normalisation of deviance” is a phenomenon which is only just becoming recognised in healthcare but is reflected here where values and beliefs about patient safety are shaped at macro level which are known to run counter to a positive climate.

Normalisation of deviance is characterised by a gradual drifting from policy or procedures which, if it has occurred before without catastrophe, becomes acceptable practice (Gerstle, 2018). Perceptions that there is a “very low probability of a catastrophe occurring” (Stoop, 2018, p.104) have the consequence of making it very difficult for organisational insiders to recognise potential threats to patient safety. Indicative of this drift to acceptance is how the senior management regarded the Trust as a high performing” organisation with a “good reputation” as indicated in Chapter 5 (s.5.3) and yet the CQC 2018 rating indicated the Trust needed improvements regarding safety, effectiveness, responsiveness, and leadership. A characteristic of high reliability organisations is that they remain alert to risks (Badia et al., 2021), something that was not overtly evident from Trust Board Minutes. In order to avoid ‘drift-into-failure’ which is a recognised phenomenon within the safety culture literature (Shrivastava and Giammanco, 2009) Trust Boards need to have an intolerance for deviation from standards.

This study demonstrates that patient safety is perceived differently by different levels of staff. Ward-level staff interpreted meso/macro level throughput management strategies as showing that senior staff (at macro level) were not as engaged with individual patient safety as they were themselves and merely viewed safety merely in terms of measurable metrics not patient care. The data (chapter 5, s.5.5) showed that those at meso level experienced a tension between compliance with the needs of the organisation and providing support to the ward team. In common with Danielsson *et al.*'s (2019) study, whilst meso and micro level staff were comfortable with what was carried out at the ward level, they believed macro level staff could do more to support patient safety. Alingh *et. al.,* (2018) describe how hospital management experience little room to manoeuvre but have to comply with external regulation. They conclude that external pressures which may include financial penalties mainly "steer managers towards a control-based safety management approach, which generates extrinsic motivation in employees but may, at the same time, undermine or even diminish intrinsic motivation to work on patient safety". In this case study Trust, whilst micro and meso level staff reported a commitment to patient safety, their motivation towards the "control-based management approach" was diminished (see s.6.4) in a potentially vicious rather than virtuous cycle. Staff felt safety concerns were ignored at senior level so they prioritised the aspects of care which they could control and which they perceived kept patients safe (e.g., turning to avoid pressure ulcers and hydrating) but did not always comply with safety measurement systems.

6.4.5 Summary of barriers to a positive patient safety culture

Those at organisational level charged with maintaining system safety are faced with uncertainty over which of several possible harm outcomes might materialise. According to Ersdal and Aven (2007) they may focus more on utility (trying to achieve the greatest good for the greatest number) than on individual patient rights (or even staff rights). Recognising possible harm outcomes is made more challenging when operating in

conditions of incomplete information, for example, lax or delayed Datix reporting. Adding escalation beds in window bays and requiring cohort nursing in situations where it is not clinically indicated modified the structural attributes of the wards. Individual agency exercised on the part of frontline micro level staff at times (for example, putting direct patient care before Datix completion) denied those at meso/macro level a real-time understanding of risks. Consequently, patient safety culture is influenced by a "complex and recursive, relationship between structural attributes" (such as bed capacity and ward design) and "individual agency" (Rich-Mahadkar, 2015, p.275), in which different levels of the organisation have the ability to impact and modify safe patient throughput at ward level.

6.5 Enabling factors for a positive patient safety culture

The existing literature on the factors that influence a positive safety culture refer to the importance of staff being able to speak up and communication openness and teamwork (see Chapter 2). An interesting finding from this study is how staff at the sharp end mitigate patient safety concerns in an expressed adherence to professional values and conscientiousness, values that have not previously been highlighted in the literature on patient safety culture. Another key finding is the role of the shift coordinator in fostering a culture of safety which has been rarely studied (Weaver et al, 2017; Weaver and Lindgren, 2017).

6.5.1 Speaking up

Attempts to improve patient safety are often grounded on initiatives within safety-critical industries such as aviation (Chapter 3, s.3.2). "Safety voice", i.e., speaking up about hazards is seen as "central to maintaining safe operations" (Noort *et al*., 2021, p.1). Aviation has adopted "attention-getters" in the form of the words 'concerned', 'uncomfortable' or 'safety' and if these are spoken, people should "stop and listen and address those concerns immediately" (Gerstle, 2018, p.878). Raising concerns is an important element in measuring safety culture within an organisation. The type of environment that supports 'speaking up' allows staff to engage in

learning from errors and is seen as a key element of creating a 'Just Culture' and is a function of good nurse leaders according to Jeffs et al., (2018). Likewise, the NMC (2018) professional code, which shapes nursing culture and the values and behaviours of individual registered nurses, expects nurses to raise concerns immediately in situations that put patients or public safety at risk (NMC, 2018: Preserve Safety, No.13). However, knowing what is a concern that should be raised is challenging and "contextually embedded" (Dixon-Woods *et al*., 2022, p.93). The organisational context and culture can contribute to "safety silence" as much as to "safety voice" (Noort *et al*., 2021, p.2).

In this study, evidence of barriers to speaking up emerged (s.5.4.2 and s.5.4.4). Even though Freedom to Speak Up protects employees, in order to raise concerns, staff have to feel that they can trust their managers (Adams et al., 2020). The Freedom to speak up (FTSU) report for October 2017 – March 2018 for the case study Trust showed that across the Trust, eight concerns related to patient safety were reported to the FTSU Guardian. No further detail of the nature of those eight concerns was recorded. In 2017-18, across the NHS, a third of all the cases reported to FTSU Guardians related to patient safety with a high number of these relating to unsafe rosters (Hughes, 2019).

Etchegaray et al.'s (2020, p. e230) study of barriers to healthcare professionals reporting safety concerns found that the three most frequent barriers associated with how leadership would respond were "fear of no change after reporting the patient safety concern, fear of retaliation, and disregard of opinion" but, where teamwork culture was viewed strongly, participants seemed more likely to speak up. O'Donovan's *et al*.'s review (2018) identified psychological safety as an important perception for patient safety culture at unit level. Even in an NHS Trust rated as "outstanding" by the CQC, management conducted "a flawed and intimidating process that damaged individual staff members and went against any semblance of an open culture in which staff were free to raise concerns" (Outram, 2021, p.19). In this study, those in more junior posts,

on Alpha ward in particular, felt the lack of psychological safety most keenly. Beta ward staff were more at ease with identifying risk issues with other staff members and in escalating that to senior staff and possibly had greater self-efficacy (Chapter 5, s.5.4.2). Staff who were less confident on Beta ward nonetheless identified that they were able to speak to other staff at their own level and seek advice in comparison to some participants in Alpha ward who did not express the same level of confidence in speaking up. Some participants on Alpha indicated that they spoke up when they felt that particular situations were unsafe but where issues were known about (as in lack of staff) they were less likely to raise this issue as they believed that the organisation was aware, and little would change as result. Given the hierarchical structures with a lack of forums or communication channels through which staff could report safety concerns, the low level of FTSU concerns is not perhaps surprising.

6.5.2 Conscientiousness

One of the dominant values expressed by registered and non-registered staff in relation to how they carried out frontline care in both Alpha and Beta wards was pride in work as a key job characteristic that they valued and contributed to job satisfaction. This contrasts with the King's Fund (2014) finding that only 23% of their 2,030 respondents has a sense of pride in their work. In particular, pride grew when staff such as the healthcare assistants on Beta ward had been actively encouraged to be involved in monitoring processes (auditing, taking responsibility for aspects of care such as weighing patients, or compliance with infection control practices (Chapter 5, s.5.4.8). The impact of this engagement had been to make them feel more valued as they could see an impact of this activity in helping shape and influence practice. Contributing in this way was instrumental in creating a more inclusive culture at ward level as making people feel valued for their contributions fosters a positive employee spirit at work (Kinjerski and Skrypnek, 2006).

A case study can reveal a nuanced understanding of patient safety culture and how ward culture may act as a countervailing factor in threats to patient safety that arise from the organisational culture of care compromise. The negative impact of not being able to provide the care required was felt by all at micro level, most particularly by more junior staff who felt that these clinical compromises were not what they signed up to. Threats to patient safety resulting from such compromises were reduced because of their conscientiousness. For example, healthcare assistants and junior staff nurses within this study talked about staying on after hours to complete tasks when their shift was ended; others remarked that when key tasks were required to be done in a timely manner, staff complied by either missing or cutting breaks short to do so. High levels of conscientiousness have been reported by Louch *et al*., (2016) as being able to buffer the impact of staff shortages or low staff-to-patient ratios However conscientiousness can be threatened by the very circumstances, such as the 'busy-ness' of the ward (Fitzsimons, 2022) that conscientious practitioners are attempting to combat.

6.5.3 Teamwork

Sammer *et al.*'s (2010) review identified seven subcultures as influences on safety culture, one which was teamwork. Fancone *et al*. (2021, p.7) argued that patient safety can be transformed by "an approach that emphasizes understanding, integration, engagement, and accountability for safety by each team member for every patient, every time, every day". Alpha and Beta ward staff saw the creation of effective teams and team working as central to helping to maintain patient safety on the ward. Over the last decade, increased attention has been paid to team design characteristics (Carter *et al*., 2019). Team effectiveness and performance is often determined by the quality of communication between team members, and the ability to recognise critical events occurring and situational issues that may give rise to patient harm. Buljac-Samardzic *et al*.'s (2020 systematic review of interventions to improve team effectiveness identified how context-specific each team and healthcare

setting is. Whilst participants in both Alpha and Beta wards recognised that they did not have all of the skill sets necessary in relation to dementia or frailty, so some individual training was needed, they felt that developing and improving team effectiveness (Chapter 5, s.5.4.8) was a key element of improving performance and maintaining safety.

Beta ward required more additional nursing hours, had higher vacancy rates and was less likely to receive additional help yet staff appeared to be coping with staff shortages. One explanation might be that the individual personalities of staff, conscientiousness (Chapter 5, s.5.4.6) and the strong sense of supporting each other (Chapter 5, s.5.4.6) as a team was strong enough on Beta ward to mitigate the impact of staff shortages. In the context of this present study, experience may be a factor in workload management as junior staff acknowledged that support and experience were major issues in helping them maintain safety when staffing ratios were low. Another potentially relevant area identified in Louch's (2016) study was that staff with high emotional stability had higher perceptions of patient safety when staffing ratios were low so the lower staff turnover on Beta ward might enhance emotional stability. Teng *et al.,* (2009, p.2089) explained that nurses with high emotional stability can be "expected to resolve patient safety problems effectively". Their research concluded that although increasing nurse staffing numbers is "typically impossible" hospital managers could improve patient safety by "stabilizing nurse emotions" (Teng *et al.*, 2009, p.2093). The long period without a ward manager on Alpha ward may have affected frontline staff emotions.

Low levels of emotional stability can affect how individuals perceive and interpret events (Teng *et al.*, 2009). Disengaged staff may experience the negative aspects of stress in comparison to those with higher levels of self-efficacy (Shoss *et al*., 2016). The healthcare assistants and junior staff on both wards who were expressing intentions to quit possibly felt less autonomous than the experienced ward nurses who may, as Hendy and Tucker (2021, p.704) suggest is needed, have perceived they had the "power and courage" to speak up and challenge management. Low

emotional stability can lead to anger, touchiness and impaired work performance which affects patient safety (Teng *et al.*, 2009). In the present study, micro level staff on both wards placed high importance on the social characteristics of ward staff, in particular the characteristics of supportiveness, friendliness, and approachability of fellow colleagues which facilitated creating a positive workplace culture at ward (micro) level and a good working environment for other colleagues who passed through the ward. These were reflective of nursing values which Feng *et al*., (2008) identified as driving patient safety culture. There was a sense of mutual respect similar to that identified by Mickan et al., (2005) which would help support the emotional stability of team members.

6.5.4 A learning culture

Mutual respect underpins a supporting learning environment (Gawne *et al*., 2020). Being a learning organisation was one of Sammer *et al.*'s (2010) patient safety culture contributing influences. The 2019 CQC report concluded that when the Trust investigated incidents it shared the lessons learned with the whole team and the wider service. It also concluded that there were low levels of compliance with mandatory staff training and release of staff of staff for training. A positive patient safety culture requires not just that lessons are learnt from incidents but that incidents are prevented. As discussed at s.6.4.1 (Safety data quality), the organisation, and the Trust Board, were failing to take advantage of opportunities to learn from the data being collected and reported. Although staff at micro level identified learning within the ward was not, in itself, an influence on safety culture, it was seen as important. Beta ward's shared learning environment was valued by the team for enabling individuals to speak freely to colleagues at their own level and above them. A learning culture has been demonstrated to have an impact on individual and team performance and their ability to adapt and coping abilities (Mikkelson et al.,1998). Participants in Beta ward, in particular, were keen to stress that they sought suggestions about care and safety concerns from the wider multidisciplinary team as a way of improving individual patient care on the

ward. This was perceived to impact on the team's and individual performances suggesting, similar to Heled et al.'s (2016) findings, that the entire team influences individual ward members. Chapter 2 (s.2.4.3.2) identified that several reviews report that opportunities to learn from errors and the adoption of non-punitive approaches are key influences in a positive patient safety culture (Alqattan *et al.,* (2019); Barrato *et al.,* (2016); Elmontsri *et al*., (2017); Sammer *et al.,* 2010).

6.5.5 Professional values

Professionalism is a necessary element of a patient safety culture (Dupree et al, 2011; Kakeman *et al.,* 2022). Professional identity and social identity in terms of the group (i.e. ward or unit) to which they belong are closely linked (Willetts and Clarke, 2014). Social Identity Theory (Tajfel and Turner, 1986) states that organisations depend upon employees exceeding their job descriptions to establish and maintain social norms that benefit the organisation. However, at meso level there was a reported perception, contrary to the concept of social identity theory, that people work for individuals, not the organisation (s.5.4.7). This is important because a failure to recognise the importance of ward or group identity for achieving organisational goals could lead to a drift from norms and values that form important aspects of patient safety culture. In this study, ward metrics and patient safety were perceived to be not just an individual nurse's responsibility nor a measure of their professionalism but a measure of their professional performance as a group. However, Amalberti *et al.*'s (2006) model of systems migration and transgressions identifies that group behaviours can change over time resulting in deviations from rules/standards (such as failure to complete Datix) which suggests that 'group identity' may sometimes undermine organisational patient safety culture. Further research into the connections between professional, (social) group and organisational identity is needed to explore the potential implications for patient safety culture.

The ward level staff, although they recognised that meso/macro staff were registered nurses, perceived them to be failing to hold fast to nursing professional values. Thus, the sense of shared values (Grove, 2017) had broken down in practice creating a barrier to a shared patient safety culture. Participants at the different levels "consciously and unconsciously appeared to differentiate themselves from each other through their behaviour, attitudes, and language" (Grove, 2017, p.178) for example, through role contextualisation of 'clinical' versus 'non-clinical' and descriptions such as 'being removed from reality'. Two distinct sets of professional beliefs were evident from participant accounts regarding the deployment of escalation beds and cohort nursing. Those at meso and macro level had lost their social identity as they were no longer part of a ward team and their professional identity had been replaced by a more managerial one. Maxwell *et al*.'s (2013, p.627) case study, conducted in a different NHS Trust from the one in this present study, found "a clear distinction emerged between having either a professional identity or a managerial identity". Furthermore, these differences were related to the content of the individual's role (Maxwell *et al*., 2013). Rather than the beliefs being reinforced by a professional identity, their beliefs were shaped by a managerial social identify of having to make pragmatic decisions. The tension between organisational demands and professional values was a source of distress at micro level (Chapter 5, s.5**.**4.2).

Thomas and McCullough (2015) explain that moral distress results when professionalism and individual integrity becomes challenged because external circumstances mean that nurses' commitment to care is weakened against their will and against their values. It is possible that, as identified by Johnson and Hughes (2018, p.7) the ward managers, whose role meant they were mostly office-bound, experienced "bi-directional pressure" as a result of their transitioning from a professional social identity to a managerial identity. This identity tension results from nurses who become managers being "pulled toward some new set of values, beliefs or behaviours stipulated by precipitating events that differed from their prototypical social identities" (Johnson and Hughes, 2018, p.8). Alpha

ward manager reported as more engaged in clinical activities than Beta ward manager.

Beta ward's stability and sense of being able to cope contrasted with Alpha ward where staff were less positive and felt less supported by some colleagues (although improvements were being made) with junior staff feeling less able to deal with the additional pressures and were less embedded in their roles than those who had been in the role for a period of time (Chapter 5, s.5.4.1). It was clear from the data that some participants saw difficulties as challenges they could overcome while others viewed them as over-whelming. These different perceptions can impact on their patient safety behaviours (Cooke, 2009).

The use of Open Systems Theory in this study has produced a more nuanced understanding of nursing professionalism as an influence on patient safety culture. Open Systems Theory suggests that influences on safe patient throughput relate to external drivers and inputs and how resources are mobilised to ensure transformation (patient care). Open Systems Theory recognises the influence of reputation and at macro level, how the organisation was perceived was particularly important (s.6.3). Those at meso and macro level recognised the organisational obligations towards all patients who were presenting to the Trust through A&E and needing in-patient care (Chapter 5, s.5.5). In contrast, at micro level, frontline staff were more focused on their personal reputation (as providers of safe care) and ensuring that they did not breach NMC (2018) values) (s.5.4.7). Consequently, there was a lack of trust in, and loss of mutual respect for (Gawne *et al*., 2020), those at macro/meso because those at ward level saw their professional values and patient safety being compromised by fellow nurses, particularly when having to admit patients to unsafe wards (Chapter 5, s.5.4.1) Participants on both wards regarded the strategies used to manage patient acuity and staffing levels (see S. 6. 5) to come at the expense of what they considered professionally acceptable.

6.5.6 The influence of ward managers and shift co-ordinators

The Umbrella review (Chapter 2) concluded that the evidence whether patient safety is shaped from the top-down or bottom-up is conflicting. This study identifies that patient safety culture is co-constructed and all levels of staff play a part through their acts or omissions. Different reviews in the Umbrella review (Chapter 2) conclude that it may be the ward manager who leads patient safety behaviours (i.e., patient safety culture) at the frontline (Feng et al., 2008), that nurses' behaviours, values and patient safety culture are influenced by their profession (Feng et al., 208), individual beliefs (Alqattan et al., 2019) or that patient safety culture and patient safety behaviours are shaped by the organisation (Elmontsri et al., 2017; Weaver et al., 2013). At meso/macro level in this present study, the ward manager was considered the person responsible for providing overall clinical leadership, setting practice standards, improving quality and safety by implementing and monitoring compliance, managing and mitigating against the challenges faced by the ward team as result of staff shortages and resource issues, developing individuals and team effectiveness and influencing ward culture.

Katz and Kahn (1978) considered that management integrate and coordinate how subsystems function in order to adapt to both external environment and internal conflicts at the same time. A clear chain of command existed between the ward manager, matron, and the senior staff at organisational level. At the macro level, there was an expectation, in line with Leggatt's (2007) findings, that the clinical and management teams would have different competencies with attributes of leadership that would have a positive impact on the safety culture. At macro level, organisational goals including its safety culture and associated priorities were perceived to be communicated to staff at ward level through the ward manager. The ward manager was specifically identified as someone who would have the ability to direct and delegate responsibility to other team members, as and when there was higher patient flow and more complex patients, knowing their staff had the skills and ability to maintain safe care

delivery without them being physically present as the more senior practitioner (Chapter 5, s.5.4.7) Thus, at meso and macro level, the ward manager was perceived to influence patient safety culture on their wards.

In contrast, all participants at micro level identified shift co-ordinators (i.e., Band 6 registered nurses) (Chapter 5, s.5.4.7) as more influential than the ward manager in shaping patient safety culture by managing and mitigating against the challenges faced by the ward team. Micro level participants viewed the ward manager as mostly office-based with little time spent on direct patient care. A similar perception of the ward manager was found by Wong and Cummings (2007) and Brasaite et al.'s (2015) whose review concluded that the ward/unit manager has often become distanced from their ward, patient care and nursing team.

Micro level participants identified how the shift co-ordinators discussed with their team how to mitigate the challenges they faced in care delivery and maintaining patient safety. Such openness is recognised as improving team efficacy and resilience (Avey et al., 2011; Heled et al., 2016). The shift co-ordinators were described by micro level participants as providing necessary clinical, patient-safety oriented leadership in setting the tone of a shift, managing and directing day-to-day, moment-by-moment realities of ward level activities. Shift co-ordinators were seen as transformational/active transactional leaders (Gabel, 2013) as they were seen to 'walk the talk', demonstrating by their behaviours the importance of safety in everyday practices. Those at macro/meso level were not aware of how important to patient safety the Band 6 shift co-ordinators were perceived to be at micro level and no strategy was in place for training Band 5 staff to move into this role (s.5.4.7).

Although many studies have shown how important teamwork is for patient safety and quality of care (Adams and Biros, 2002, Rafferty et al., 2001; Mickan and Roger, 2005; Manser et al., 2009; Sammer et al., 2010). This study reveals the importance of the role of the shift co-ordinators is for the ward teams in terms of patient safety, and how they shape junior staff

behaviour by providing them with both clinical and personal support directly on the ward during shifts. A rapid search using synonyms such as “care co-ordinator” has not revealed any similar studies in an acute NHS Trust other than one study based in an emergency department in the UK, where brief mention with no supporting evidence provided was made of the shift coordinator being “critical to the engagement and motivation of the rest of the team” (Redfern et al., 2018, p.2). Brief mention of developing the leadership of team members including “a care coordinator” was made by Edgar *et al*. (2021, p.2240) but mostly the ‘care coordinator’ (‘care facilitator’, ‘patient facilitator’, ‘care navigator’) is someone external to the ward team (Nourse and Paauwe-Weust, 2021; Rosen *et al*., 2018; Sheaff *et al*., 2019;) or performing a different role from the Band 6 shift co-ordinators.

Seven participants from both wards identified that supportive approachable shift coordinators were key to assisting more junior staff and agency staff to meet the challenges of wards and that the support of colleagues and the shift co-ordinator was essential in managing the impact of resources, addressing issues affecting their well-being and in reducing their likelihood of quitting. Survey research by Van Bogaert et al., (2013) of 1,201 nurses, in two hospitals in Belgium, identified that workloads and emotional exhaustion were associated with burnout and increased intention to quit the profession. Organisation and unit level management support were identified as mediating the effects (Van Bogaert et al., 2013) but in this study, across both wards, the shift co-ordinator, not the ward manager, was reported by six participants to be the person helping the team to mediate workload stressors. They helped ensure that the dynamic equilibrium (Chuang and Inder, 2009) needed for safe, effective patient care was maintained. However, their effectiveness in managing safe patient throughput could be weakened by input pressures in terms of inadequate staffing levels for patient numbers and patient acuity. The Open Systems Theory lens, applied to this Trust, highlights the importance of the shift co-ordinator in the transformation processes. Band 6 shift co-ordinators on both Alpha and Beta wards identified that they were

frequently required to take over care of patients when short staffed. This required them to ‘juggle’ the conflicting demands of the dual roles of managing and leading the shift alongside delivering direct patient care.

6.6 Chapter summary

This chapter has shown how individuals at all levels co-construct patient safety culture. An Open Systems Theory lens reveals how the safety culture is shaped by macro and meso levels with some distance from the micro level sharp end. Individuals themselves contributed to the prevailing conditions and “environments for safety through the norms they produced and reproduced and through their behaviours and by the demonstration of their professional virtues” (Aveling et al., 2016, p.222). How staff saw themselves was shaped by both the organisational contexts and prevailing cultural norms with gaps emerging between what they were supposed to do and what available resources allowed them to do (Aveling et al., 2016). Aveling (2016) argued that individuals do not stand outside of the system or separate since they create, or modify, and are subject to, the social systems. Thus, it is not just a matter of balancing systems against individual accountability or safety above financial and operational goals. A positive patient safety culture encourages the identification, communication and resolution of safety issues and provides appropriate resources, structure, and accountability to maintain effective safety systems (Tan et al, 2019).

In summary, this study has revealed:

- Values, attitudes, and beliefs regarding patient safety are not percolated, embedded or collectively perceived throughout the organisation.
    - Perceptions of reputation (external feedback) shaped attitudes to patient safety culture at all levels but at macro/meso levels it was the organisation’s reputation that was important (i.e. meeting targets) whereas responses to patient safety by the

registered nurses at micro level, were shaped by NMC expectations of them as individuals.

- Opportunities to interrogate, explain, and respond to patient safety were not consistently taken at any level of the organisation. Safety-related data being collected by the organisation was not being adequately interpreted to learn from and prevent incidents. The Trust Board was failing to interrogate the data being reported. The underuse of Datix reporting as a way of raising concerns and reporting incidents was also commonplace at micro level. The explanations for why micro level did not necessarily report incidents, especially when under pressure, and the meso level did not enable the everyday raising of patient safety concerns lies in the perceived separation between being ‘clinical’ and ‘non-clinical’.
- The strategies and practices adopted in the system to manage patient throughput and achieve equilibrium are compromises as a result of input and external pressures, with compromise being seen as inevitable and acceptable at macro and meso level. Perspectives differed between the organisational levels as to what level of risk could be accommodated, where, and on whom, the risks should fall. Compromises between carrying out the activities of the organisation and safety were perceived by those at micro level as failing to achieve the balance needed. Micro level staff did not see the bigger picture and expressed fears that they might harm someone as a result of compromised standards.
- At meso and macro level, the ward manager was perceived to influence patient safety culture on their wards but at micro level, the Band 6 shift co-ordinators were perceived as more influential in shaping patient safety culture than the ward manager and it was how they organised staff skills, tasks and situational factors helped prevent safety breakdowns.

Chapter 7: Conclusion

7.1 Introduction

Understanding culture, or 'the way things are done around here' requires an exploration of the "sociological citizenship" (s.1.1.5.2), i.e., the basic assumptions, norms, and values and repeated behaviours, of the group(s) of interest (Schein, 2004). Patient safety culture is part of organisational culture and the WHO (2021, p.19) expects patient safety culture to "percolate in the attitudes, beliefs, values, skills and practices of health worker and managers". NHS England's (2021) Patient Safety Strategy states that "Patient safety culture is a key part of all national patient safety improvement programmes, so research findings would influence the design and strategic approach to these". Consequently, they state that they welcome research on the:

> "…management and leadership in creating cultures of safety and improvement, and the organisational factors and systems needed to support this". (NHS England, 2021)

Additionally, research is needed that helps the NHS "to better understand the factors organisations may need to modify to have the same success in implementing patient safety improvements or innovations as in other organisations" (NHS England, 2021). The aim of this study was to understand perceptions of, and influences on, patient safety culture within an Acute NHS Trust in England through an exploratory case study utilising Open Systems Theory (Boddy, 2008; Katz and Kahn, 1978). NHS Trusts act as social systems dependent on their supporting environment for continued inputs and then engage in transformative activities and interactions of individuals to yield outputs (i.e., safe patient care) (Boddy, 2008; Shrivastava *et al*., 2009). Katz and Kahn (1978) argue that the organisation and its subsystems strive to achieve a dynamic steady state.

Through this case study and employment of the Open Systems Theory lens, a more nuanced understanding of some of the factors that act as enablers of, or barriers to, a positive patient safety culture has emerged.

This chapter identifies the original contribution to knowledge and implications for patient safety within an Acute NHS Trust, discusses the limitations of the study, then makes recommendations regarding patient safety culture and for future research.

7.2 What was already known

The NHS is expected to treat patients effectively, within a safe environment, whilst protecting them from avoidable harm. Unfortunately, overwhelming evidence exists, in the UK and globally, that significant numbers of acute hospital inpatients are harmed resulting in increased length of stay, permanent injury or death (WHO, 2021; ONS, 2018; NHS, 2020).

Avoidance of patient harm reflects organisational patient safety culture as influenced by aspects of the individual organisation, its people and organisational, national and international strategies. Patient safety culture and the ability to provide harm-free nurse-led (which includes the care provided by healthcare assistants or their equivalent who are acting under the direction of registered nurses) care at ward level is influenced by aspects of the ward itself, patient acuity and people's perceptions, understandings and practices.

An Umbrella review (Chapter 2) revealed gaps in knowledge that this study set out to address. Brasaite *et al*., (2015) identified that the dynamics of how patient safety culture is supported within hierarchical organisations and the relationship between patient safety practices at the frontline remains unanswered. Feng *et al*., (2008) identified two contrasting perspectives, top-down or bottom-up) on how patient safety culture operates within organisations but, since the complexity of

healthcare organisations and their individual differences all play a part in patient safety culture (Baratto, *et al.,* 2016; Ross-Walker *et al*., 2012), the only way to understand whether a top-down, bottom-up or joint approach operates within a particular organisation would be to examine that organisation as an entity.

Ross-Walker *et al*., (2012) saw nurses as the 'glue' whose perceptions need to be elicited, and Feng *et al*., (2008, p.317) considered this would be the only way to identify *"common understandings of nurses in viewing patient safety [which emerge] from the dynamic reciprocal interaction among people, tasks and systems".* Elmontsri *et al.,* (2017) also identified a gap in understanding nurses' perspectives. The evidence from the Umbrella review of literature is not conclusive regarding whether nurses' practices, values and patient safety culture are influenced by their profession (Feng *et al*., 2008) or individual beliefs (Alqattan *et al*., 2019) or specific roles such as the ward manager (Barrato *et al*., 2016; Willmott and Mould, 2018) or whether patient safety practices are shaped by the organisation (Elmontsri *et al.,* 2017; Weaver *et al*., 2013). The Umbrella review revealed a need to conduct deeper explorations of individual organisations to gain a more nuanced understanding of what helps nurses and others to keep ward patients safe. This is needed because organisations have their own nature (Baratto *et al*., 2016), cultures and sub-cultures (Sammer *et al*., 2010) and dynamics (Ross-Walker *et al*., 2012) and surveys of organisations merely provides a time-specific snapshot (Lee et al., 2019), In particular, a gap in knowledge was revealed regarding how nurses perceive patient safety culture and how they perceive patient safety at ward level is influenced within their own organisation.

7.3 What this study adds

Adopting the case study methodology (Yin, 2014, 2018) enabled the capture of the range of perspectives and the contextual influences that the Umbrella review suggested influenced patient safety culture. This is a

study using mixed data sources of one acute NHS Trust which helps to unpack the complexity of patient safety culture. The embedded units of analysis (two similar medical wards) allowed a comparison because, as was pointed out in the Umbrella review, cultures may vary from department to department or ward to ward (Sammer *et al.*, 2010).

A more nuanced understanding of the enablers of, and barriers to, a positive patient safety culture has emerged as presented next. The following three sections identify the new and important findings from this study that:

- Staff at different levels have different values and attitudes to patient safety although all believed it was important.
- Specific roles, ward manager or shift co-ordinator, are important in shaping patient safety culture.
- The organisation experiences challenges in finding balance between competing pressures and there are differences in how risks and compromises are perceived.

7.3.1 Values, attitudes, and practices

There was a recognition on the part of all interviewees (micro, meso and macro level) that a positive patient safety culture was important (s.6.3). Attitudes to patient safety culture, and associated decisions, acts and omissions were, in part, shaped by perceptions of reputation. At Board, macro and meso level, maintaining the organisation's reputation was important, and may have played a part in failing to thoroughly interrogate available information (s.6.4.1). At micro level, considerations of professional nursing reputation shaped positive patient safety-related behaviours including speaking up (s.6.5.1). However, ward, or social, identity (s.6.5.5), also played a part in shaping potentially negative behaviours such as delays in completing time-sensitive Datix reports (s.6.4.1). This study has shown that the attitudes, values, and practices that support patient safety culture were not smoothly percolated throughout the organisation.

This study reflects other studies of the identity of different groups working within the NHS (Aufegger *et al*., 2020; Bresnan et al., 2019; Johnson and Hughes, 2018) clearly demonstrating the differences between those at the sharp end, holding onto their profession and therefore the importance of patient safety, and those at the blunt end whose managerial identity had subsumed their professional clinical one. Alqattan *et al*.'s review (2019) found that individual beliefs shaped patient safety behaviours. In contrast, this study found that it is group identities, whether this is related to be a nurse or being a manager, that shaped patient safety behaviours.

7.3.2 The influence of roles

At meso/macro level, the ward manager was perceived to be the individual who communicated organisational goals, including safety culture to those at ward level (s.6.4.3). The ward manager was specifically identified by those at that level as the individual who would direct and delegate responsibility to team members taking into account patient flow and patient complexity. This echoes the findings earlier in the Chapter 2 Umbrella review where Willmott and Mould (2018) argued that the main influencer for patient safety culture at ward level was the ward managers' expectations and safety priority. In contrast, this study supports Brasaite *et al.'s* (2015) perspective that ward managers have become distanced from the wards, patients, and the team. The perception at ward level by micro level staff was that it was the shift co-ordinator who shaped responses to the day-to-day challenges and who therefore ensured patient safety. Good shift leadership was perceived to impact on team effectiveness, create a strong sense of togetherness and supporting each other, create a culture of learning and increasing a sense of engagement and feeling valued (s.6.5.6). While staff training and individual development were perceived as important for managing the pressures of increasing patient complexity, shift co-ordinators played a vital role in appropriately allocating staff and helping develop individuals. To micro level staff, the shift co-ordinator was the person who was perceived to be more influential than the ward manager in terms of keeping patients safe despite the gaps in service

delivery that were a result of input pressures arising from increase in patient numbers, frailty, staffing, and reduced resources resulting from financial pressures. Their leadership helped ensure that clinical compromises and threats to patient safety resulting from meso/macro level strategies to address input pressures were mitigated as much as possible. As such, this study reveals how important the shift co-ordinator can be in the development of the ward culture, particularly in how day-to-day realities are handled in order to maintain patient safety.

7.3.3 Compromises and finding balance

The organisation was subject to external pressures and individuals at all levels were making compromises to achieve a balance between inputs and resources in relation to managing patient throughput (s.6.2 and s.6.4.4). The decisions, acts or omissions made by those at all levels (micro, meso, and macro) produced latent conditions (Rasmussen and Svendung, 2000) that could result in patient harm. All levels were contributing to the construction of the patient safety culture. For example, the separation between meso/macro levels and micro levels arising from the organisational hierarchy (s.6.4.2) potentially had an impact on patient safety. Those at the frontline were making decisions about the reporting, or not, of patient safety issues either because they were under too much pressure or because there were not the avenues for communication (s.6.4.5). Several of the reviews within the Umbrella review (Chapter 2) showed that patient safety culture is shaped by organisational communication (Alqattan *et al.,* 2019; Barrato *et al.,* 2016; Elmonstri *et al*., 2017; Sammer *et al.,* 2010) and this study points to the potential for disconnection to be addressed through better communication. An example of this was evident in this present study where staff on Beta ward identified how they were encouraged to challenge and participate in decision-making and how it helped to create a supportive work environment (s.5.4.7) that supported patient safety. It resulted in an emphasis on a learning environment with staff respecting and valuing each other.

The perception of a disconnection between ward and organisational levels is echoed in the King's Fund report on Culture and Leadership in the NHS (King's Fund, 2014). This survey of NHS organisations consistently revealed a difference between views at different levels of the organisations and how an absence of high levels of dialogue contributes to a failure of collective responsibility for the culture of the organisation. Just as the King's Fund (2014) report was commenting on how to instil compassionate care, there are similar findings from this case study about why it is difficult to instil a positive patient safety culture. Micro level participants' attitude to the existing patient safety culture was one of resignation fostered by a belief that reporting would change nothing (s.6.2), not, therefore, a culture of positive engagement with organisational patient safety reporting systems.

Those at meso and macro level were constantly balancing competing pressures. In so doing, they adopted practices that are known to be compromising of patient safety and justified these by reference to organisational pressures (s.6.4.4). Different perceptions existed between the organisational levels as to what level of risk could be accommodated, where, and on whom, the risks should fall (s.6.4.2). Compromises between carrying out the activities of the organisation and safety were perceived by those at micro level as failing to achieve the balance needed. Threats to patient safety resulting from such compromises were perceived at micro level to be reduced through the conscientiousness (s.6.5.2) of frontline staff, teamwork (s.6.5.3) and through the guidance of the Band 6 shift co-ordinators (s.6.5.6).

There was a difference in priorities between the meso/macro and micro levels (s.6.3). Macro/meso level considered finances, accountability to the public purse, and maintaining organisational reputation when implementing strategies to cope with input pressures so were prepared to make clinical compromises that were distressing to those at micro level. At Board level, patient safety was a low priority agenda item (s.6.4.1).

7.4 Reflexivity

According to Parahoo (2014, p.253) reflexivity is the act of *"examining one's own assumptions, prejudices and decisions to find out how these may have affected data collection analysis and interpretation".* A research diary captured thoughts and feelings during the research journey and supervision sessions were used as opportunities for discussion and reflection. These sessions were audio-recorded opportunity to revisit for further reflection to help reduce memory bias, imaginability and illusory correlations (Tversky and Kahneman, 1974). This was an important element in challenging myself about my decisions. Researcher bias was reduced by taking steps to minimise impact on data collection, analysis and providing an audit trail (Chapter 4, s.4.8).

The process of reflexivity facilitated awareness of the insider-outsider experience. Self-awareness of my prior socialisation as a nurse/nurse educator and professional 'insider-ness' (Chapter 4, s.4.8) and examining my own perceptions about safety culture was an important starting point before imparking on data collection to identify my biases and, according to Tversky and Kahneman, (1974), was essential to increasing trustworthiness. Utilising reflexivity and awareness of the insider-outsider experience helped to achieve the balance between familiarity with, and distance from, participants within the middle ground of insider and outsider that researching in healthcare as a practitioner and educator brings. However, with hindsight it was possible to recognise that despite taking steps to guard against the risk of "overshadowing" study data with "flashes of insight" as a result of having insider expert knowledge (Tracy, 2012, p.128) early conclusions about the role of the shift co-ordinator being 'pivotal' needed to be revised and the data revisited.

The location may also have helped reflexivity since not knowing the case site or individuals was less comfortable and it made me self-conscious when interviewing participants. I had been concerned whether participants would hold back or reveal more based on this but participants seemed

trusting and open about their experiences. Being aware of the sensitive nature of the subject matter was important and, on reflection, offering phone interviews as well as face-to-face, was more comfortable for micro level participants and less daunting for me.

7.5 Strengths and limitations of this study

7.5.1. Research Design

The adoption of the case study methodology allowed patient safety culture in the context of one acute NHS Trust to be explored. Yin's (2014) case study design allows for (1) the study of dynamic interactions between micro, meso and macro levels that occur in complex organisations; and (2) provides an outline for in-depth exploration across an organisation where process, human interaction and behavior impacts on both patient and organisational outcomes. Using different types of data sources in combination in the case study enabled higher levels of nuance in the findings to be identified. The study was able to include the voice of staff at different levels within the organisation and the ways in which patient safety culture was evidenced in documentary sources and in conventional safety metrics. This combination facilitated examination within and across the data, culture, reported perceptions, the metrics that reflected the real world and the influences that might be affecting interviewee responses.

A limitation of case study design is reduced ability to generalise from the findings (Denscombe, 2010). To mediate against this, a 'typical' acute NHS Trust was recruited so findings are likely to be recognisable by similar organisations, particularly those with similar Care Quality Commission ratings. Many of the issues facing this study's organisation are mirrored in other organisations, especially staffing and financial constraints Trusts (Buchan *et al.,* 2019).

7.5.2 Study setting

As the researcher, my lack of familiarity with the study Trust was valuable as it meant that I had few preconceptions as an 'outsider' however, being a nurse/nurse educator, I was also an 'insider' therefore understood what was symbolically meaningful (Coombs and Osbourne, 2018). The *"fluidity of the researcher's position is what necessitates reflexivity across all forms of interpretivist research"* (Coombs and Osbourne, 2018, p.244). Being an outsider be seen as a limitation in that I had no relationships that I could draw upon to help facilitate access to or within the organisation. It was geographically distant in comparison to the initial site (Chapter 4, s.4.8) resulting in more time spent undertaking site visits to form relationships and recruit participants but ultimately, this was probably a strength of this study. Although other setting would have been convenient, researching an unknown organisation probably minimised the risk of taking 'shortcuts' based on knowledge and experience (Tversky and Kahneman, 1974).

7.5.3 Ward selection

Another strength of this study was that the wards included in the study were self-selected following a presentation of the intended study at a ward managers and matrons meeting (Chapter 4, s.4.9). Following this meeting, the Chief Nurse who had local knowledge of the five interested wards' safety history and safety records, gave formal agreement to approach Alpha and Beta wards. As an 'outsider', I was not aware of either wards' history or safety record in terms of the safety metrics data which reduced the possibility of researcher bias in ward selection. However, this gatekeeping introduced potential bias as the Chief Nurse might have decided to 'hide' the other three volunteering wards from research scrutiny by refusing permission to approach them.

7.5.4 Quantitative metrics data collection

This was not a study of how effective the wards were in maintaining safe patient care; the inclusion of the safety metrics data was to provide

context. The metrics data, including the NHS Safety Thermometer data, provided useful information relating to the wards' performance regarding the four most commonly identified preventable patient harms. It provided the backdrop to the views of interview participants about everyday practices and behaviours that might affect patient safety. Notwithstanding the views of participants at different levels about the priority and effectiveness of patient safety, the finding that the host Trust chose to collect its own metrics on a daily basis rather than simply relying on the Safety Thermometer helped to reveal the importance that they attached to accurate recording.

Safety metrics data are limited in what they can reveal about patient safety. First, they only provide a snapshot of a particular time on one day and thus does not reflect all of the incidents of harm. Second, data may be missing or inaccurate (Strobel, 2020). Third, the patient safety thermometer only required the monitoring of four specific harms. Lastly, metrics do not provide explanations for events.

7.5.5 Qualitative data collection – interviewing

Strategic objective 1 of the WHO (2021, p.22) *Global Patient Safety Action Plan 2021-2030* is to "…make zero avoidable harm to patients a state of mind". To understand the values, attitudes and practices that contribute to a positive patient safety culture it was important to understand how staff at different levels perceived patient safety. The extracts from the interviews presented in Chapter 5 are rich and expressive. The analysis of the whole dataset of interviews led to numerous codes and as recommended by case study methodology (Yin 2014, 2018), a clear audit trail was presented.

Inevitably there are limits to the number of interview participants possible in a case study. The approach adopted in this study was that data saturation was not possible or necessarily helpful. The approach was that

meaning is generated through interpretation of, not excavated from, data (Braun and Clarke, 2021).

Central to the researcher's skills for conducting interviews is being open and deeply interested in participant's experiences and a commitment to accurately represent their experiences (Low, 2013; Guba and Lincoln,1989). As a nurse/nurse educator with a long commitment to patient safety (Chapter 1, s.1.7), I was committed to ensuring that participants' voices could be clearly heard through using direct quotes from participants' transcripts.

A strength of utilising semi-structured interviews was that they provided structure while allowing freedom to drill down and explore areas identified by staff. Interviewing micro-level participants first, followed by those at meso and macro-level, benefitted the study by allowing issues identified by participants at ward level to be explored first and for these to inform subsequent interviews, where they could be clarified and explored further allowing a more nuanced, in-depth understanding to emerge. It allowed for clarification of any issues or processes that were highlighted. One disadvantage was that it required more complex organisation of the interview schedules.

Slightly fewer interviews were conducted than hoped for but were sufficient in relation to case study methodology as explained in Chapter 4, (s.4.4.1.2) Some interviews suffered interruptions, but none was terminated as a result. Rabel *et al.*'s (2014) study examining interrupted interviews in domestic violence found no impact on participants' responses. Given that participants in this present study were autonomous professionals, the impact on data quality is believed to be minimal. Participants seemingly spoke openly and honestly providing great insight and depth so any limitations in the volume of data are considered offset by methodological rigour and "a lot of right brain" (Seidel, 1998) (Chapter 4, s.4.6.4.1). Several interviews were conducted by telephone allowing the advantages of participants choosing time and place and talking more

freely about their workplaces (Opdenakker, 2006). Initial concerns that cues could be missed were dismissed as it became evident that data quality was enhanced because of the ease with which staff discussed their perceptions. The timing of the quantitative and externally sourced data collection (after the qualitative interviews) is considered a strength because it eliminated possible bias that knowledge of each ward's safety data might have introduced.

7.5.6 Documentary sources

Documentary sources help provide context to a case study (Yin, 2014) thereby enabling a more nuance understanding to emerge. Additional data sources were analysed to understand how patient safety was viewed. These included Trust Board minutes to see how patient safety was scrutinised and assured, and the various opportunities for staff and patients and carers to comment on safety concerns. Online data sources (CareOpinion, HealthWatch, Indeed.com, etc) which were used to gain a sense of the host Trust's identity and reputation helped provide greater nuance than the interviews and organisational metrics alone might have given. There is a risk of bias in that such online postings may be prompted by some unknown agenda on the part of the person posting. Unlike the interviews where rich quotes could give primacy to the voice of participants, it was not possible to give detailed quotes from online sources as this could lead to identification of the host Trust. Likewise, anything that was reported from CQC reports (2014, 2018) had to be edited to protect the organisation. CQC reports provided rich insight and, as an official scrutineer of NHS organisations, their reports can be considered to contain much less bias than the other online sources mentioned.

7.5.7 Summary

Viewing an Acute NHS Trust as an open system has rarely been undertaken. The characterisation of the healthcare organisation as an open system in a dynamic state which attempts to transform inputs whilst

being affected by factors outside the system helps to expose the competing demands and underlying mechanisms by which staff, external feedback, and internal feedback loops influence outcomes. This study situates patient safety culture as part of the sub-systems of the organisation and gives a relational structure that reconciles how nursing work, staffing, environmental and demographic factors contribute to a culture that prioritises, or not, patient safety. The overall strengths of this study include its uniqueness as an Open Systems Theory exploration of an Acute NHS Trust (the organisation). In addition to considering the wider context as part of situating the Trust within the wider NHS system, all levels of the organisation were included, whereas most other case studies examining patient safety only include ward (micro) level as this is where care is provided and harm, potentially, can be prevented. Adopting a theory-driven approach can help generate findings that may be transferable to other settings (Crowe *et al*., 2011). The choice of case study setting here was a large Acute NHS Trust which was typical of other similar size organisations, operating within the same NHS system, utilising similar ward designs (Maben *et al.*, 2015) and subject to similar input pressures in relation to patient acuity, staffing and finances. Therefore, many of the findings are likely to have transferability to similar acute NHS Trusts.

7.6 Contribution to knowledge

7.6.1 Contribution to knowledge relating to acute healthcare organisations' patient safety culture

This study gave an opportunity for increased awareness about the knowledge needed by the NHS organisation to increase awareness of patient safety. This organisational knowledge derives from the individual and collective experience of its staff which is the tacit knowledge (Fascia, 2019; Niedderer, 2007) rooted in the actions and commitments of personnel. This study did not review or measure the explicit knowledge of staff about patient safety. However, as identified in Proposition 1 (Chapter 2, s.2.7), it revealed which aspects of the individual organisation influence

patient safety culture. Financial considerations, staffing shortages, and external perceptions of reputation and public accountability were identified as influences in shaping the organisation's patient safety culture. These informed, and resulted, in clinical compromises impacting on both wards' ability to provide safe care. As the NHS continues to face the "turbulence" (Swiger *et al.,* 2016) and challenges created by a pandemic these conditions are likely to continue across the wider NHS system with more acute Trusts finding themselves compromising patient safety.

The findings in this study revealed a perceived disconnection between the macro/meso and micro levels that posed a threat to patient safety. The organisational hierarchical structure affected the percolation of patient safety culture through over-reliance on traditional routes of communication and little interaction between micro and macro levels which restricted opportunities for providing feedback or raising concerns which, in turn, negatively impacted on patient safety culture. This is shown in Figure 6.2. Thus, perceptions of organisational safety culture differed between macro/meso level and the two wards. Micro level participants reported that meso and macro level staff were disconnected from the reality of day-to-day ward life. At meso level, frequent compromises were enforced on wards to meet additional demands across the organisation, based on specific measures including patient acuity and pressures in different areas. Differing perceptions were identified in terms of what compromise or risk was considered acceptable at different staff levels. The ways in which micro level staff see patient safety culture is in relation to what is professional nursing practice rather than organisational patient safety culture. In this Trust, there were few opportunities for interaction between micro and macro levels and a reliance on traditional routes of communication such as huddles, resulting in a perception by micro level staff that their patient safety concerns would not be heard.

This study revealed that the organisation had several sub-cultures, formed partly by ward identity, individual values and beliefs. When considering how to influence a positive patient safety culture, organisations need to be

aware of these sub-cultures and how to create a culture of shared learning. Specialist nurses in the case study organisation were able to advise on safety-related strategies, for example, for patients with dementia, but their role was perceived as less helpful by those at micro level whose everyday practices and behaviours need to demonstrate concern for patient safety. One of the recommendations of the National Patient Safety Strategy is for there to be patient safety specialists (NHS England and NHS Improvement, 2019). It will be important for these specialists to develop a concern across all levels of the organisation and to be aware of how organisational hierarchy can be a barrier to a positive patient safety culture.

Whilst the role of ward managers has traditionally been seen as pivotal in terms of providing clinical leadership, ward managers were viewed by micro level participants as disconnected from their wards and part of the meso level. This study identified the shift co-ordinator as being more influential, according to those on the frontline, in ensuring patient safety by maintaining and creating team cohesion and care delivery effectiveness than the ward managers. The shift co-ordinator was perceived to steer a course that supported both quality of care and patient safety despite the turbulence and risks created by the day-to-day realities of the ward.

The monitoring of mandatory safety metrics, including the Safety Thermometer, focuses on compliance and standards-attainment.
This study revealed that for patient safety values and behaviours to percolate through an organisation, the organisation needs to not only collect and report data, nor be satisfied if the number of incidents/harms is within acceptable tolerances, but its internal and externally-facing examination and interrogation conveys its commitment to a positive patient safety culture. For the organisation to achieve a dynamic steady state (Katz and Kahn, 1998) characterised by a strong, fully percolated patient safety culture, information received through internal feedback loops, as well as externally, needs to be translated into action. As identified in the

National Patient Safety Strategy (NHS England, 2019, p.8) a systems approach can “maximise the frequency of things going right”.

7.6.2 Contributions to Nursing practice knowledge

Nursing is a profession with a strong associated social identity arriving from a long period of education, a code of practice, a public image and organisational identity (Hoeve, *et al.,* 2014). Yet little research has been undertaken to describe how group norms and motivations help to define patient safety culture and the contribution of nurses’ professional identity and belongingness (Willetts and Clarke, 2014). This study highlights how professional behaviours, such as conscientiousness and commitment to teamworking, shape their attitudes to patient safety. However, their conscientiousness did not always extend to completing Datix, which was the reporting system the meso and macro levels relied upon to monitor patient safety risks.

As identified in Proposition 2 (Chapter 2, s.2.7), patient safety behaviours at ward level are linked to aspects of the organisation, the ward, patient acuity and staff perceptions and their group identity. Identified as particularly influential was the shift co-ordinator who managed organisational pressures (such as opening temporary additional bed spaces). These individuals are band 6 nurses however, the study revealed a lack of specific training for the shift co-ordinator role.

7.6.3 Contribution to Organisational Theory knowledge

Open Systems Theory recognises external (social, economic, philosophical and political) and internal (hierarchy, culture, systems, throughput management) influences upon an organisation. Employing Open Systems Theory, as indicated by Proposition 3 (Chapter 3, s.3.3.5) in this case study of a typical Acute NHS Trust, helped reveal an organisation under pressure, struggling with finances, staffing, and changing patient demographics whilst trying to maintain its reputation locally and nationally. The input pressures resulted in staff at micro, meso

and macro level having to make compromises in managing patient throughput. As a result, the latent conditions that potentially could give rise to patient harm were created even though all individuals interviewed expressed commitment to a positive patient safety culture. Through Open Systems Theory, a more nuanced understanding of patient safety culture within one Acute NHS Trust has been uncovered. Macro/meso level strategic responses to manage throughput may compromise patient safety to the distress of micro level staff. In relation to managing patient throughput and addressing the turbulence created as a result of input pressures, Open Systems Theory has helped identify that balance and the achievement of a dynamic steady state (Katz and Kahn, 1978) can be down to individuals like shift co-ordinators working at micro level, who have an important role in navigating and achieving patient safety.

7.7 Recommendations for organisational and nursing practice

This section provides recommendations based on the findings of this study. While it is recognised that some findings pertain to the study site itself, they are likely to have resonance with similar healthcare organisations. The recommendations relate to how organisational and nursing practice and patient safety education can help shape a positive patient safety culture.

Recommendation 1

Individual organisations, and the wider NHS system, collect and report a lot of data. The NHS Patient Safety Strategy 2019 and Patient Safety Incident Reponses Framework (NHS England, 2020b) (Chapter 1, s.1.3.2) continues mandatory reporting of data but organisations are expected to examine this in line with five dimensions (past harm, reliability, integration and learning, anticipation and preparedness and sensitivity to operations). All metrics need to be examined thoroughly not seen as a benchmark for organisations to be satisfied if numbers fall within acceptable tolerances.

Recommendation 2

This study indicates that the shift co-ordinator has an important role in maintaining patient safety at ward level. The value of this role needs recognition. When selecting individuals for these roles, healthcare organisations should consider personal characteristics that are valued by team members (i.e., approachability, supportiveness, knowledge, competence and self-efficacy). The study revealed a lack of specific training for this role so organisations should consider how to develop staff including the use of effective leadership styles can be used to address the challenges currently faced in clinical practice.

Recommendation 3

Hierarchical disconnection between the different levels of the organisation needs identifying and addressing. Making clinical staff voices part of an organisation's decision-making regarding how safe patient throughput can be managed despite input challenges (finances, staffing, patient acuity) could help find more acceptable measures thereby relieving the distress of providing compromised care. This may be achieved by providing opportunities for ward staff to talk directly at board meetings about their day-today reality, by innovation with safety huddles, by more effective two-way communications or regular formalised meetings between lower grades of clinical staff with more senior level staff. A shared governance approach to clinical decision-making, where all levels of the organisation are present in a committee structure that is shared (Taylor, 2016) may be valuable. 'Magnet hospital' accreditation processes provide a potentially useful template and the feasibly of adapting these for the NHS in England is worth considering.

Recommendation 4

Within the study site, no one spoke for healthcare assistants at senior board level as is likely to be common across much of the NHS in England. Organisations should consider how to give a voice to healthcare assistants

who are the largest group of employees and most involved with direct patient care.

Recommendation 5

There is a need to educate nurses to understand better how to assess risk, and how their acts/omissions (including failing to complete patient safety reporting systems such as Datix in a timely manner) help to influence a positive patient safety culture.

Recommendation 6

This study showed how those at macro/meso level were prepared to impose clinical compromises that micro level staff felt threatened patient safety and sometimes overrode their own organisational criteria for the use of escalation beds. A safety syllabus and training for NHS staff was introduced in May 2021 (AOMRC, 2020). The aim of this syllabus is to make safety active recognising that a positive patient safety culture is based on human factors, systems, and the ways that people work. One of the important developments arising from the introduction of this syllabus is that it emphasises the importance of safety training for all levels. The syllabus adopts a consensus-based approach to identifying risk with a multi-professional involvement. This reinforces the finding from this study that there is currently no shared understanding of risk which has the potential to contribute to harms. Reflecting the findings from this study, it identifies that there should be training in understanding how a system contributes to patient safety, what constitutes risk and how to respond to it, human factors and how individuals manage safety and safety concerns and learn from incidents. Domain 4 of this syllabus builds an understanding of the contextual factors of patient safety and promotes a focus on safety culture. Section 4.4 of the syllabus explains the key dimensions of reporting culture, just culture, and learning culture. These are all identified in this study as enabling an organisational culture to support patient safety culture. The syllabus advocates the use of a discussion instrument to create a dialogue about risk, safety, reporting and

learning. This study has also emphasised the importance of creating opportunities for dialogue to reduce the hierarchical disconnect found in this Trust. Organisations should embrace the new safety syllabus and, given the difficulties identified in the study over being released for learning activities, ensure staff have protected time for their training.

7.8 Recommendations for Future Research

Research is needed to:

1. Improve understanding of the contexts that encourage and spread engagement with safety improvement activities and safe practices. For example, this study highlighted the important role of the Band 6 registered nurse shift co-ordinator and how they could be developed to promote supportive teams who have a strong patient safety focus.
2. Explore role development of Band 6 nurses (the shift co-ordinators) in relation to managing patient safety.
3. Understand those factors that could optimise meaningful incident reporting practice, review and response. This study identified the under-reporting by frontline staff and it is important to gain a better understanding of what influences when, and why, patient safety is recorded. This study has shown that the choices made by micro level staff are influenced by a combination of professional and social cultures and contextual pressures.
4. Understanding why staff vary in their compliance with safety practices.

7.9 Dissemination

Following the publication of the National Patient Safety Strategy the findings from this study pertaining to perception of risk, reporting behaviours and how a culture is shaped will inform how the strategy is accepted and implemented. Papers will be prepared for publication in peer-reviewed journals.

7.10 Thesis Conclusion

This thesis illustrates how the findings from the case study can impact on how organisations approach improving safety. It helps to fill one knowledge gap which is about patient safety culture. Patient safety culture has been widely studied and there is an understanding of the organisational factors and systems needed to support and develop a culture that encourages and spreads safety improvement (Chapter 2). There are many aspects of patient safety culture that warrant investigation including the effectiveness of interventions, and the most appropriate basket of patient safety measures. Existing knowledge (s.7.2) does not, however, explain why staff vary in their behaviours nor does it explain why there may be low incident reporting or learning from mistakes. Seeing the organisation as an open system meant that the external pressures of staff shortages, financial difficulties, and increasing patient complexity can be seen to act on the system acting as a barrier to a positive patient safety culture. This lens highlights the dynamic complexity of the system and how feedback loops have an effect on decision-making. The consequence of juggling throughput at macro/miso levels shapes the views of those at micro level affecting, in turn, their practices. The influences on the system are not linear or causal but an example of such feedback loops. For example, the external pressures lead to a shortage of beds, leading to decisions to use window bay beds, leading to risks associated with a lack of oxygen. This leads to a micro level staff perception that risks could be taken further leading to less reporting. The nuanced insights gained from qualitative issue interviews with staff at all levels enables a view of the whole system and how such transformation processes and feedback loops influence values, attitudes, and behaviours. A recommendation from this study is that feedback loops regarding patient safety are reviewed so that identified gaps or weaknesses are addressed to overcome the disconnection between meso/macro and micro levels and ensure opportunities are provided for patient safety voices to be heard.

Healthcare systems are complex and an understanding of the culture of the system has long been recognised as important in relation to patient

safety. There has been, however, a focus on describing patient safety through its metrics (whatever their limitations), but it is staff motivation, resilience and commitment and their response to pressure that contributes to a culture where safety is embedded. This study contrasts with enquiries into failings in care (Francis, 2013) which placed the onus on individual accountability at ward level for their actions with a requirement for all clinical staff to place the patient before themselves. This study showed that micro level staff are intent on so doing and report a conscientiousness and pride in their work. However, clinical compromises, and being unable to provide the standard of care they wanted, impacted on qualified and unqualified staff and their subsequent practices and behaviours. This study also contrasts with the response in the National Patient Safety Strategy to develop specialist roles for patient safety. It demonstrates the importance of "percolation" whereby all staff adopt patient safety in their attitudes and behaviours. In this, an important role in maintaining and creating this commitment was perceived to be played by the ward shift co-ordinators. Their leadership in relation to managing the day-to-day reality of ward level was reported to be central to ensuring patient safety is maintained and the necessary clinical compromises are implemented in a considered, balanced manner. A further recommendation from this study is the provision of training for junior nurses to step into the role of shift coordinators who keep patients safe 'in the moment'.

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Appendix 1: EBSCO, Discovery system EDS,List of databases

Academic Journals

Academic Search Complete

Association for Computing Machinery (ACM)

American Chemical Society (ACS)

American Economic Association (AEA)

American Engineering Society (AES)

AgEcon Search

Allen Press Journals

American Association for the Advancement of Science (AAAS)

American Mathematical Society (AMS)

American Physiology Society

American Planning Association

American Society of Civil Engineers (ASCE)

American Society of Mechanical Engineers (ASME)

Annual Reviews

Art and Architecture Archive

Associated Press Video

Association for Information Systems

ASTM Journals

Audio Engineering Society

BASE (Abstract Only)

BioMed Central

BioOne

BMJ Journal Collection

Boston College Publications

Brill Online Journals Archive

Business Source Premier

Cambridge University Press

Canadian Science Publishing

Central Online and Open Access Library (COOL)

CFA Institute

University of Chicago Press

CINAHL Complete

Cochrane Library

Core Historical Literature of Agriculture

De Gruyter

Digital Literacy

Duke University Press Journals

eBook Academic Collection (EBSCOhost)

EDP Sciences

Education Research Complete

Equinox Publishing

ERIC

European Views of the Americas: 1493 to 1750

Exact Editions

GreenFILE

Harvard Education Publishing Group Journals

Haymarket Media

HINARI

Hospitality and Tourism Complete

Institution of Civil Engineers (ICE)

Institute of Electrical and Electronics Engineers (IEEE)

IMechE Collection with Archive

Inderscience Enterprises

IndianJournals.com

IngentaConnect

Intech Open Access – Journals

Intellect Journals

Intermid

Internurse

IOP

Journals @ OVID

JSTOR

LexisNexis

Library, Information Science and Technology Abstracts (LISTA)

LiebertOnline Journals

Literature Online: LION

Liverpool University Press

Lyell Collection

MAHcomplete

MarketLine

Massachusetts Institute of Technology (MIT Press)

Math-Net.RU

MEDLINE

Nature Journals Online

Networked Digital Library of Theses and Dissertations

Newswires

Nutrition Science Collection

OECD-iLibrary Books, Papers and Statistics

OnePetro

Open Access Journals

OpenDissertations

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The British Institute of Radiology

The Construction Information Service (CIS)

The Royal Society

Thieme Connect

University of California Press

World Advertising Research Centre (WARC) Publications

Westlaw

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Appendix 2: Table Data extraction and characteristic of included reviews

Lead Author Year Country of Origin	Type of review	Number. of included studies/ papers Date ranges Data-bases searched	Geography of included studies/ papers (UK is reported separately from Europe) Participants Settings	Review question Aim /Objectives Definition of PSC provided Theoretical /Framework	Influences on PSC	Perceptions regarding PSC	Recommendations for future research	RAG rating
Alqattan *et al* (2019) UK	Narrative synthesis of qualitative studies	22 2006 – 2017 MEDLINE EMBASE PsycINFO	Europe=5 USA=3 China =3 Far East= 1 Arab=3 South America=3 Canada=1 UK=1 Australia=1	To evaluate the methodological aspects of existing qualitative studies which focused on PSC in hospital settings. Objective: to provide an overview of study quality and identify gaps in knowledge	Theoretically, PSC consists of objective aspects, like healthcare providers' behaviours and practices related to patient safety, and subjective aspects such as their beliefs, values and attitudes about patient safety.	Not discussed	Future studies of PSC should use both qualitative and quantitative methods to gain a comprehensive understanding of PSC in a particular healthcare organisation (p97)	

		Web of sciences	Africa (Ethiopia) =1 Healthcare staff Hospital settings	No definition of PSC 1 study used Vincent's Model	These subjective aspects cannot be captured by quantitative survey-based methods aimed at determining aspects about the organisation at a particular period. Key influences on PSC are: staffing, communication, non-human resources, organisational factors and patient-related factors. Table 3 (p96) identifies 12 influencing characteristics: teamwork within units, teamwork across units, supervisor and manager expectations and actions promoting			

					safety, management support for patient safety, staffing, overall perception of patient safety, organisational learning, non-punitive responses to errors, handovers and transitions, open communication, feedback and communication about error, frequency of events reported			
Baratto *et al* (2016) Brazil	Integrative literature review (Whitte-more and Knafl)	16 No limit – 2013	USA=8 UK=2 Europe=3 Far East =2 Australia=1	What has been produced on the subject of patience safety and organisational culture in hospitals? No definition of PSC	Problematic organisational culture and PSC is where managers are punitive of errors or indifferent. Hierarchical cultures are negatively correlated with the			

		LILACS, SCOPUS Medline PubMed	Health Professionals Hospitals settings		SAQ, safety climate scale and IA, management who are weak or poor communicators. Hierarchical organisational culture is less positively associated with PSC than group. Organisational culture varies with each institution, country and demographics.			
Brasaite *et al* (2015) Finland	Systematic review	18 2000 – 2012 Medline CINAHL	USA=6 Canada=1 Europe=5 UK=3 Arab=1 Far East =2 Participants	Q1. How has the concept of patient safety been defined in studies focusing on healthcare professionals' knowledge and skills pertaining to this area?	Teamwork climate was seen as the most important influence by nurses. Training staff on patient safety improves perceptions of management. Healthcare professionals'	Healthcare professionals have quite positive attitudes to patient safety and event reporting but some are still afraid of punitive consequences i.e. the perception of PSC is that errors are punished rather than		

			All healthcare staff including Nurses and Doctors Hospital settings	Q2. What were the methodological characteristics of previous empirical studies on the topic? Q3. What areas have been investigated in relation to professionals' safety knowledge, attitudes or skills? No definition of PSC	knowledge of patient safety is deficient	seeing errors as something that can happen.		
Elmonstri *et al* (2017) UK	Systematic review	18 Jan 2005-Dec 2015 MEDLINE EMBASE CINAHL	Arab =18 (excluding N. Africa) Saudi Arabia=6 Egypt=4 Jordan=3 Oman=2 Kuwait=1 Palestine=1	To identify overall status of PSC in Arab countries. Uses WHO definition but also cites Reason's definition	In Arab healthcare systems, having a non-punitive response to error reporting was not seen as helping patient safety i.e. different cultural values. Organisational learning and teamwork scored highest.	"The rate of medical errors and adverse events is associated with the attitudes and perceptions of professionals towards safety" (p4). Nurses may have a different perception of patient safety culture from directors and	There is a need to do studies incorporating a mix of methods with semi-structured interviews to identify root causes (influencers) of PSC.	

		ProQuest PsychINFO Google Scholar PubMed	Lebanon=1 Clinical and non-clinical staff including nurses Mostly Hospitals 2 studies primary care			administrators (administrators in US are the executive) (p10).		

Feng *et al* (2008) USA	Dimensional concept analysis	45 texts (mix of opinion, research, books and theses) 1970-2006 CINAHL MEDLINE PsycINFO Antropolog -ical index	Studies only USA=11 Canada =1	To carry out analysis of the concept of safety culture in nursing. Q1. What is the nature of PSC or SC? Q2. What is the perspective in each study? British Health and Safety Commission Definition of PSC	Nursing culture (shared values, beliefs and behavioural norms) are over-arching dimensions of PSC. Contributing factors to development of PSC are management, immediate supervisors, individual and behavioural, rules and procedure, reporting systems. PSC is a subset of organisational culture and a product of nurses' belief system. PSC manifests itself in behaviour of nurse managers and nurses and 4 sub-dimensions were identified: System, Personal, Task, Interactive.	The interpretative perspective on patient safety theme identifies the dynamic nature of PSC and is viewed as a 'bottom up' (versus 'top down') perspective. "The functional perspective focuses on the underlying assumptions or the core purpose of the organization or unit, and hence highlights the system and task-associated sub-dimensions of the patient safety culture. The interpretive perspective focuses on the emergent property of values and beliefs from the group members, and thus		

					Interactive perspective links to dynamic nature of organisational culture. Patient safety comes from nurses' values more than the management goals. PSC – p316 – the factors contributing are: Management, Immediate supervisors, Individual and behavioural, Rules and procedures, Reporting systems. Proposes that "patient safety culture is the product of nurses' shared values and beliefs towards patient safety. It is a set of common understandings of nurses in viewing	emphasizes the personal and interactive sub-dimensions of patient safety culture" (p316). The two perspectives contrast with each other		

					patient safety, and it emerges from the dynamic reciprocal interaction among people, tasks and systems" (p317)			
Goedhart *et al* (2017) Netherlands	Scoping review	12 1996- 2015 MEDLINE, CINAHL Business Source Premier Embase	USA=6 Canada=6	To assess and synthesise studies reporting direct associations between structural empowerment of frontline nurses and quality outcomes, and to identify gaps in the current literature.	Links between structural and psychological empowerment impact on job satisfaction and creating supportive learning environments for nurses Structural empowerment Influence of team and individual effectiveness	Perceived Influence of both Structural and Psychological empowerment on quality of care metrics Structural empowerment influences Safety climate	More research needed into the cultural and organisational context outside North America. Association between empowerment, quality outcomes and patient safety in relation to nursing-sensitive outcome	

							measures needs exploring.	
Halligan and Zecevic (2011) Canada	Literature review	139 (including 2 reports and 2 books) only 122 studies identified by origin 1980-2009 Databases not identified	Studies USA=89 Canada=15 UK=8 Europe=10	To identify and summarise previous studies, summarise definitions of safety culture, and safety climate, and the theoretical underpinnings and measures of safety culture in healthcare and review progress in light of interventions No review definition refers to the commonly cited in studies British Health and Safety Commission Suggests that the Definition of culture is context specific unit level more than at organisational level.	Focused on the dimensions of patient safety culture and interventions. Assessing culture of safety, provide safety science education, raising safety concerns, senior partnership leadership with units, learn from one defect per month and reassess culture. Interventions that include the following: team training, patient safety team creation, leadership, walkarounds,		Studies needed on the study of culture itself in healthcare Need for anthropologists' input into the study of culture and more longitudinal studies to observe and measure change Current surveys provide a superficial snapshot of climate not culture need for more qualitative methodologies to explore underlying culture.	

				16 used High Reliability Organisation Theory. 7 used Model of Cultural Maturity 5 used Donabedian's Model 4 used Organisational Theory 4 System Theory				
Lee *et al* (2019) USA	Integrative literature review	17 1999-2017 CINAHL Goggle Scholar PsycINFO	USA=9 Europe=5 Arab=2 Far East=1 Clinical and non-clinical staff	To provide an integrative review on the relationship between safety culture and patient safety and quality of care outcomes in hospital settings.	Framed report around HSOPC and found a lack of support / consistency across the studies regarding what influenced PSC		Researchers should employ a theoretical framework to underpin their studies	

		PubMed Scopus Web of Science	Including nurses and doctors Healthcare professionals and patients	Health and Safety Commission Advisory Committee 1993 definition of PSC I study used Nursing organisation and outcome model. 1 study used System engineering initiative for patient safety model. 1 study used Rationing of nursing care in Switzerland model				
O'Donovan *et al* (2018)	Narrative review	92 (65 studies), 27 opinion papers/ literature reviews)	Identifiable origin= 71 USA=26 UK=16 EU=11 Australia= 5 Canada=4 Brazil=3 China=2	To explore recent literature to examine factors that affect safety culture within healthcare teams Definitions of Safety culture given	Context is relevant as to what will influence patient safety culture but potentially useful interventions to enhance PSC are: Teamwork and Communication	Perceptions of PSC impact upon the types of interventions to improve it that are considered appropriate. Perceived impact of the role of nurse practitioners in creating and sustaining inter-	Further research examining the relationship between PSC and safety outcomes and the relationship between teamwork, impact of occupational	

		Jan 2006- Feb 2017 PsychINFO, PubMed, CINAHL, Academic Search Complete	Norway=2 Jordan=1 Israel= 1		Leadership of teams and safety culture Accountability and Safety culture Measuring safety culture	professional teamwork by coordinating care Impact of occupational wellbeing on patient Safety Leaders engagement and commitment to safety. Inclusiveness for employee Psychological safety	wellbeing on safety is needed.	
Reis et al (2018) Brazil	Systematic review	33 studies 2007- 2016 MEDLINE, Web of Science Scopus	USA=6 EU=12 Arab=9 Far East =4 UK=1 Norway =1 Hospitals and community	To identify studies that had utilised the HSOPSC to collect data of safety culture Definition of PSC given	Framed around HSOPC Key influences on safety culture Teamwork within units Staffing Preparing and training staff	Co-ordination and co-operation across units Importance of a just culture Hospital organisational cultures are underdeveloped as regards to patient safety		

			based hospitals Mostly nurses Healthcare and non-clinical staff					
Ross-Walker *et al* (2012) Australia	Systematic review	10 studies (+ 4 opinion papers) Jan 1990-June 2011	USA=6 Canada=4 Europe=2 Australia=2 Nurses only Hospitals	To determine the best available evidence in relation to RNs' experiences of the culture and climactic factors in the workplace that influence nursing workloads in an acute healthcare setting. No definition of PSC 1 study used Human Performance Framework	P3106 There are "intangible and largely immeasurable cultural factors that are a feature of hospital environments…[which] …signify the 'how we do things around here'" P3108 "Organisational climate has a significant impact on nursing workloads" – remember nursing workloads link to patient safety. "Nurses compensate for bureaucratic		Qualitative research in the 'real world' would identify the intangibles associated with culture and climate…" p3124	

					contexts being the 'glue' that maintains systems and gaps in service delivery" Culture is a major driver of employee behaviour" p3108 "Climactic factors…quote on p3109 Complexity of the environment" p3119 "Bureaucratic context of the organisation" p3119 P3120 – safety initiatives come at cost to nurses and mean nurse manager has less time to spend on ward to nurture and develop staff. Staff may manipulate data to increase staffing levels			

					based on patient acuity. Patient churn and patient acuity have impact. Internal silos within organisations create inefficiencies. Staffing methodologies are part of organisational climate as well as culture. Managers moving nurses around is resisted by nurses who are concerned at lack of knowledge and skills for different clientele. P3122 - the concept of "cognitive workload" is fundamental to nursing practice and patient safety but is largely immeasurable.			
Sammer *et al*	Meta-analysis of	38	USA=38	To organise the properties of safety	Identified 7 sub-cultures as influences	The culture of patient safety is perceived in	To understand safety culture,	

(2010) USA	qualitative studies	1999 -2007 MEDLINE CINAHL	Healthcare staff Hospital settings	culture…and to develop a conceptual culture of safety model. Agency for Healthcare Quality and Research definition of PSC	on safety culture: Leadership, Teamwork, Evidence based practice, Communication, Learning organisation, Just culture, Patient-centred. Cultures vary across organisations from department to department, unit to unit, individual to individual. There are links between organisational culture, a rapidly changing workforce and financial and quality success.	this review as beginning with leadership at the top of the organisation. Hospital safety culture is something that is perceived within the organisation and externally. These perceptions are embraced in questions such as “Does this hospital provide a safe environment for patients? What will it take to assure the community that we are a safe hospital	there is a need to evaluate the relationship with patient safety indicators	
Weaver *et al* (2013) Australia	Systematic review	33 2000 – 2012 PubMed	USA=20 UK=11 Canada=1 Australia =1	To identify interventions used to promote safety culture in healthcare, assess the evidence for their effectiveness in improving both safety	Key influences are team training, team communication and executive walkarounds.	Perceptions of PSC are improved when there is more connection between frontline staff and the executive.	Future research should investigate safety culture as a cross-cultural contextual factor that accommodates	

		CINAHL Cochrane EMBASE PsycINFO	Healthcare professionals Hospital settings	culture and patient outcomes, and describe the context and implementation of these interventions. Defines PSC as 'an aspect of organisational culture' comprising 'shared values etc' (citing Schein 2010 and Pronovost et al 2006	Interventions to improve PSC may not reduce patient harm (only 6/11 studies had improved outcomes and 1 study found a decrease in error reporting).		the effectiveness of other patient safety practices. The strength of evidence would be improved if theoretical models were used. There is a need to better understand the contextual role of safety culture.	
Willmott and Mould (2018) Australia	Integrative literature review (Whitte-more and Knafl)	11 2010-2015 One-Search	USA=2 Europe=4 UK=1 Israel=1 Arab=1 Australia=1 Far East=1	Q1. What are health professionals' perspectives regarding patient safety and do these differ among different health professionals?	Hospital PSC is the organisation's pattern of responses to problems and these responses contribute to safe work practices. The ward PSC is a subculture of the			

			Clinical and non-clinical including Nurses and doctors and other healthcare professionals Hospital settings	Q2. Is the perception of PSC different at the hospital versus ward level? Q3. Do clinicians and managers place the same importance on PSC? Agency for Healthcare Quality and Research definition of PSC	hospital's PSC and is influenced by the manager's expectations and safety priorities. Organisation learning. A number of influences are listed on p388 as measured by different tools. The tools were: AHRQ, SAQ, PSCHCO, Scottish Hospital Safety Questionnaire, Stanford/PSCI.			

Appendix 3: Table Key characteristics of existing Theories and Models utilised in the NHS

Origin	Model date / Framework / Theory	Under pinning theories	Systems /individual / combined	Strengths / Limitations / Weakness
James Reason	Swiss Cheese Model (1997)	Organisational Accident causation	Systems approach identifies latent and active	**Strengths** Used in risk management Used in Healthcare and developed further to include more organisational factors Popular model easy to understand **Limitations** Linear approach to accident causation, Does not show how complex process interact or combine in response to different influences Over simplification of components
Charles Vincent	The London Protocol Framework (1999)	Framework based on and adaptation of Reasons model	Analysis of clinical incidents	**Strengths** Allows organisations to reflect on incidents and identify gaps in clinical practice In doing so identifies latent and active conditions

		Organisational accident causation		Environmental factors and contextual factors **Limitations** Retrospective
Charles Perrow	Normal Accident Theory	Normal Accident Theory	Systems theory	**Strengths** Organisational factors contribute to the occurrence of accidents Failure in one component in a chain,
Researchers at the University of California	High Reliability Theory	High Reliability Theory	Systems	**Strengths** Organisation design Emphasis on human interaction with systems Five key characteristics of highly reliable organisations (HRO) -pre occupation with failure, reluctance to simplify sensitivity to operations, commitment to resilience and deference to expertise **Weakness** Concerned with management approach

Rene Amalberti	Model System Migration (2006)	Rasmussen's theory: Migration to boundaries	System	**Strengths** Dynamic view of safety and reliability How Violations are managed and humans interacting with policies and guidelines and standards of safe practice and investigation bias Human beliefs situational pressures Weakness
Erik Hollnagel	Resilience and Resilience Engineering (2006 &2012)	High Reliability Theory	System level Team level	**Strengths** Proactive rather than reactive to defences less reliance on past failures. Concepts of safety 1 looking at what can go wrong Retrospective Safety 2 looking at what goes right ability to adapt Focus on teamwork **Weakness** Multifactorial issues impact on safety 1 Requirement to understand how thing go right

Appendix 4: Table of Themes, sub-themes, codes

Codes (n=230)	Sub-themes	Themes
Description of structure, challenges, 'Family' feel, Several generations working there, Lack of clarity, CQC criticism	Organisational structure Alpha and Beta wards	Overview of the host Case Study Trust
Vanguard initiative descriptors	Vanguard initiative (s.5.3.1)	Inputs
Local demographics descriptors	Local community demographics (s.5.3.2)	
Bed occupancy and patient frailty, Acuity levels, DH Targets	Bed occupancy and patient frailty (s.5.3.3)	
Staffing levels data, Understanding that additional staff not always available and will always need more, Looking for the magic number of staff	Staffing levels (s.5.3.4)	
Flow and capacity, Patient acuity, Patient safety culture, Macro/meso aware of pressures at ward level, If not measured, it doesn't happen, Day-to-day reality, No summer anymore	Pressures (s.5.4.1)	Throughputs and transformation processes
Prioritising of targets and patient throughput, Acceptance of risk at meso/macro levels, Variable levels of support offered to wards, Site managers seen as unsupportive. [Values]: Meso and Macro participants all RNs, Acceptance of risk, Macro/meso over-rule own criteria, Seeing the bigger picture, Nursing values less important than managerial values, Individual patient safety not paramount concern, Focus on	Priorities (s.5.4.2)	

targets, Financial accountability to the public, Stoicism, No magic wand, Micro level sees safety of patient paramount concern, Evidence-based practice, Professional registration, HCAs work under direction of RNs, Protecting NMC registration		
Unsafe conditions, Recognising unsafe conditions, Mandatory safety requirements, Choice between giving care or reporting on Datix, Measure of quality of care provided, Organisation stressing the need to mandatory recording of pressure ulcers, Avoidable harm, Datix completed for patient related issues, Harm occurrences (e.g. medication errors, falls, Hospital Acquired Catheter-related Infections, Hospital Acquired Pressure Ulcers, Venous thromboembolism) [Escalation beds]: Rationing care, Macro/Meso over-riding own criteria, Not concerned with impact on ward of additional patients, Reduced staffing, Areas not suitable, Lack of patient privacy, No call bells or oxygen creates risks, Not listening to micro level concerns, Micro afraid of breaching NMC Code, Feeling overwhelmed [Cohort nursing]; Not following evidence-based practice, Micro afraid of breaching NMC Code, Replacement of one-to-one nursing, Vulnerable patients, Patient needs vary, Difficult to manage [Moving staff]: Response to extreme staffing shortages, Relieving pressures elsewhere in organisation, Fear of	Balancing pressures (s.5.4.3)	

becoming unsafe practitioner when moved to unfamiliar ward, Other staff have to pick up slack for new or unfamiliar staff, Site and senior managers not interested in ward staff reality		
Chains of command, Communication barriers, Out of touch with reality on wards, Escalate issues upwards, Expectation staff follow reporting process with line managers [Reporting risk of harm]: Safety voice, Being heard, Psychological safety, Commitment to organisation, Feeling that things will improve [Datix completion]: Organisation stressing the need to record pressure ulcers on admission, Completion of Datix when short staffed not seen as a priority, Non-compliance with Datix, Completion of Datix form for at-risk patient in escalation beds, Delayed Feedback after Datix, Covering own back, Ability to spot and prevent further harm not identified or measured, Capture of actual harm not possible harm, Datix not reflecting real time, Staff aware of Trust requirements, Not seeing the impact of reporting on improving workloads [Systems to raise concerns]: Dashboard data presentation, If it's not measured it does not happen, Not listened to about risks, No voice for HCAs, Problems releasing ward staff for meetings, Failure to acknowledge acuity levels on the ward, Unrealistic expectations regarding contacting site managers when very busy	Reporting and communication (s.5.4.4)	

[Huddles]: Membership, Purpose, No voice for junior RNs or HCAs, Removes staff from direct patient care, Staff unable to be released to attend		
[Organisational hierarchy]: Meso removed from day-to-day reality, Reporting and communication, Lack of awareness of roles within the organisation beyond immediate managers [Executive walkarounds]: Lack of engagement, Perceived ineffectiveness, Lack of contact with Band 5 and 6 nurses, Lack of contact with HCAs, No feedback provided on how these impact on ward areas	Organisational hierarchy (s.5.4.5)	
[Monitoring quality and safety]: Role of Trust Board, macro and meso levels, Quality and Safety Committee reports, Trust Board minutes not showing learning from incidents, Lack of reported strategies or follow-up actions, Factual and Numerical data presented without interpretation or interrogation, Safety not priority in Board minutes [Managers' Leadership]: Leadership style (transactional versus transformational, authoritarian versus democratic), Ability to alter leadership style [Meso/Micro vision]: Communication of vision to Micro level, Separation between clinical and non-clinical, Managers' priorities, Organisational priorities [Leadership Characteristics]: Approachability, Supportive, Confident, Educated, Friendly, Respectful, Skilled, Capable,	Leadership (s.5.4.6)	

Valuing staff, Knows staff capabilities, Provides opportunities for all staff including HCAs to be heard		
[New roles]: Specialist nurses, Dementia specialists, Frailty Nurses, Link staff, Cover several wards, Shares useful specialist knowledge, Not replacement for staffing shortages [Ward leadership]: Band 6 Shift co-ordinator role, More influential than ward manager, Go-to person, Competent individuals knowing own staff capabilities, Organises patient-staff skill mix, Ensures balance/gyroscope, Personal qualities, Ward manager clinically credible but mostly office-based, Alpha ward without ward manager for months, Impact of new Alpha ward manager. Meso/macro see ward manager as clinical leader, Acts as a resource for staff, Setting standards and policies within clinical area, Ward manager sets vision of ward, Supported by Matron, Training for new ward managers, Responsible for recruitment, Raises staff concerns at senior level [Teamwork]: Effectiveness, All in it together, Valuing everyone in ward team, Interactions and relationships, Communication, Supportiveness, Approachability, Having each other's backs, Collective decisions about care, Collaboratively working [Micro level values]: Providing patient centred care, Individualised care, Pride in work, Wanting to do the best,	Roles and responsibilities (s.5.4.7)	

Staying late, Culture of learning, Professional registration (for RNs), Having standards, Following training guidance, Commitment to patient, Duty of care, Empathy, Caring like it was my relative, Not always able to give quality care as trained to do		
[Developing staff]: Continual development, Micro level staff keen to learn from errors, Improve knowledge base/bring new information, Sharing knowledge with colleagues/ team members, Need for feedback after incidents to Micro level [Link person]: Impact of link roles on standards of care, Link roles associated with key areas of reducing harm, Inviting more staff to be link people [Audits]: Responsibility for audits at a higher band 6/7 level, Giving audit role to HCAs, Workloads insufficient time to do audits [Freeing staff for training]: Impact of staff shortages/, Inability to release staff for mandatory and other training, Innovation and seeking alternative ways of developing care [Safety focus]: Learning culture, Guidelines, Improved safety monitoring, Action plans	Developing staff (s.5.4.8)	
[Safety metrics data]: (pressure ulcers, falls, hospital-acquired catheter infections, VTEs, medication errors and other patient safety related recorded data); Safety Thermometer: Alpha ward v. Beta ward	Prevalence of harm Data quality Link between staffing levels and patient harm	Outputs

Measure of quality, Compliance of Datix forms, Weakness of Safety Thermometer, Organisational importance of certain metrics gathering, Care hours per patient staffing requirements, Medication errors, Completion of audits Accuracy, Snapshot, Missing data	Attitudes to patient safety	
Trust reputation impacted by number of falls and pressure ulcers, Awareness of impact on the organisation, Reputation, CQC inspections, Comparison to other Trusts, Employee reviews, Perceptions of Trust from Family and Friends, HealthWatch, CareOpinion, Indeed, Feedback loops (internal and external), NHS staff survey	External feedback Internal feedback	Feedback on performance

Appendix 5: Interview schedule

Participant background details completed by participant before commencement of interview

Number of years in post

Number of years in the NHS

Clinical speciality

Current position / role

Banding / Grade

HCA

Qualified Nurse

Doctor

Manager

The topics asked in interviews

1. Participant understanding of patient safety culture.

2. Participant's perception of patient safety in their ward, areas of weakness or strengths relating to patient safety

3. Involvement in improving patient safety practice in their area.

4. Level of priority given to patient safety in ward

5. Feedback and support provided at ward or senior levels

Questions asked of Macro / Meso staff	**OST**
Q1. How long have you been working at this Trust? **Q2. What do you understand by the term 'patient safety culture'?** Probing questions How does this translate into everyday practice? Can you share with me an example of this from your practice	**Perception of PSC**

Give an example of your experience? **Q3. Where has there been an improvement in patient safety in your area?** Probing questions how was it achieved was it site specific? Can you share an experience of this? **Q4. What does a safe ward look like to you?** Probing questions What makes up a safe ward? elements Is it about adequate staffing, leadership, teamwork? **Q5. What support mechanisms are in place in your ward / hospital to help staff deal with patient safety issues ?** Probing questions Can you challenge unsafe practices? **Q6. Are you actively involved in audits or safety forums?** Probing questions If you raised an issue was it acted upon? Did you get any feedback? Can you share this experience of this? **Q7. Are you encouraged by other team members to report safety issues?** Probing questions	**Systems** **Perception of PSC** **Internal – systems processes** **Systems - hierarchy**

How openly do you feel staff can speak about issues or concerns to colleagues? If not why not? What do you feel are barriers?	**Communication / Connection between levels of hierarchy**
Q8. What makes a good team? Probing questions What characteristics do you value? What impact does the team leader have on the team's performance or priorities?	**Perception of PSC at unit level**
Q9 If an error/ incident is reported in relation to your own work, what feedback do you receive from your line manager? Probing question How does your ward or hospital help you learn from your mistakes?	**Teamwork** **leadership** **Perceptions of influence on PSC**
Q10 Finally, what do you think is the most important that you can do to in relation to making wards safe?	**Systems - hierarchy**

Appendix 6: Interview schedule for senior Trust staff

Participant background details completed by participant before commencement of interview

Number of years in post

Number of years in the NHS

Clinical speciality

Current position / role

Banding / Grade

HCA

Qualified Nurse

Doctor

Manager

The topics asked in interviews

1. Participant understanding of patient safety culture.

2. Participant's perception of patient safety in their ward, areas of weakness or strengths relating to patient safety

3. Involvement in improving patient safety practice in their area.

4. Level of priority given to patient safety in ward

5. Feedback and support provided at ward or senior levels

Questions asked of Macro / Meso staff	**OST**
Q1. How long have you been working at this Trust? **Q2. What influence does hospital identity have on ward or safety culture within your organisation?** Probing questions	**External influence – reputation**

How does it differ Give an example of your experience?	
Q3. Where has there been an improvement in patient safety in your area? Probing questions how was it achieved was it site specific? Can you share an experience of this?	**Systems**
Q4. What does a safe organisation look like to you? Probing questions What are the barriers / enablers to creating a safer organisation?	**Perception of PSC**
Q5. How are ward staff encouraged to raise safety issue? Probing questions What are the barriers do you think that prevent people? How are ward staff supported when the raise an issue?	**Internal – systems processes**
Q6. How are staff at ward level involved in safety forums? Probing questions How do you give feedback? What support is offered to areas with identified issues.	**Systems - hierarchy**
	Communication / Connection between levels of hierarchy

Q7. How are staff views considered during safety audits/ walk about/ safety forums? Probing questions How openly do you feel staff can speak to you about issues? What do you feel are the barriers?	
Q8. What does a safe ward look like? Probing questions How is this achieved in practice? What impact does the team leader have on the team's performance or priorities?	**Perception of PSC at unit level** **Team leadership** **Perceptions of influence on PSC**
Q10. Finally, what do you think is the most important that you can do to in relation to making wards safe?	

Thank you for taking part in this interview would you like to add anything

Appendix 7: Recruitment Poster

IRAS Reference Number 206373

PARTICIPANTS NEEDED FOR
RESEARCH INTO PATIENT SAFETY WITHIN YOUR WARD

I am looking for HCA's, Nurses to take part in a study that aims to find out what contributes to improving patient safety.

As a participant, you will be individually interviewed about your experience of patient safety in the work place.

Interviews would last no longer than 60mins at a time and venue that is mutually agreeable

For more information about this study, or to volunteer for this study,
please contact:
Marie Culloty
0207 815 5929
Email: *(cullotma@lsbu.ac.uk)*

This study has been reviewed by, and received ethics clearance through the School Ethics Panel in the School of Health and Social Care at London South Bank University and NHS HRA

Or

Complete a Contact Details Card

Version (2) 25.09.17

Appendix 8: Example of coded transcript participant No2 Beta ward -Staff Nurse

Researcher, thank you for agreeing to be interviewed {..} how long have you worked here in this trust	
Participant I have worked here fourteen months now	1st job since completion of training 14 months band 6
Researcher,14 months and was this your first job in this trust	
Participant yes	
Researcher, and this was your first ward {….} job and are you a staff nurse	
Participant Yes I am	
Researcher, that's fine {…. } what do you understand by the term patient safety culture ?{..}umm What would that mean to you ?	
{..} Patient safety culture is {…….} is about ensuring ummm that patient health communication {…} everything ummm that we ensure that safety of the patient rather than {……} ummm like ensuring that everything	Definition of safety culture Individualised High Standards of care -Communication -Health outcomes

about the care of the patient ummmm is of a high standard Researcher, right {…….} Participant for example working with others and family and professionals and everything that's involved in that patients care {…} and checking to ensure that appropriate care is in place for the patient and as well considering the patients choice {…} ummm voice {…..} like putting the patient in the centre about the decisions about the care you are providing to the patient following the guidelines as well policies as well as for us as {….} from as {….} NMC we do have guidelines that we follow {….} ensuring that patient safety {…..} **Interruption knock at door tape stopped** Researcher, in terms of the ummm {…} in this area what improvements have been made in terms of patient safety in the ward? Participant, audit because I do audits as well ensure that the ummm patient safety,	**Working collaboratively to provide patient centred care** - Family - Professionals - Patient voice Compliance with - Guidelines - Policies - Professional guidelines **Contributing to safety** -audits - -identify areas for improvement Intra-professional meeting

we have a meetings as well about cases patient between nurses and doctors as well sometimes there is a lack of communications {……..} we have a meeting that we have to talk and about where we are lacking as well { …..} Researcher, is that something new? Participant Yep ummm {..} it's something that we have employed in our ward I don't know about other wards but in this ward we have we do this here. {…}ummm maybe we have a concern and we haven't signed for medicine and there is a certain time for the medication to be taken and we didn't know that it has been prescribed because it has not been communicated to staff so {….} when we have that concern we go to the manager and we have a meeting with the doctors and let them know that if there is anything you want to us to do rather than putting in in {…} because its quiet busy you have to be reading book because sometimes {…….} there are things you have to do at a certain time before I can as you can see today its busy so that before I get to the book it might be too	**Lack of Communication between professionals** **Aiming for improvements seeking out areas to improve** **Encouragement of communication Regarding safety issues** -raising concerns -medication changes -lack of communication **Consequences of poor communication** -delays in drug giving/ timing etc

late so is it important that you can verbally tell the nurses so that you can say that can you prescribe medication for that patient can you give it, or give an IV to that patient or so that you can pull it all together{……..} I do auditing as well as like I am the at-risk link Researcher, all right Participant so I audit every month we have to audit the fluid balance chart the vital signs of the patients OBS chart of the patients to see {..} maybe we are doing it appropriately to the right standard Researcher, ummm Participant So when it's not done and that I have to call the staff responsible sometimes we don't have time but the basic place we can see during the handover before I will put up the audits we have a board what we are lacking complaints, etc all those things so we are able to educate them on all of those things this is how to do this recording Researcher, so initially you said about the communication with the doctors?	**Face to face communications rather than just written orders/ changes** -Drug changes - auditing **Encouraging ownership to improve compliance** - Auditing - Standards of care - Identify staff responsible - Accountability - Education to improve **Role of negative feedback to encourage compliance**

and doing a meeting who initiates that who is the person who requests it and who was the person that came up with that idea was it a member of staff? {..} umm ward manager or who?	
Participant I told them, I complained about it and I told the manager this is an area when we have i.e. they are all on rotation so when we are having a new batch. {……..}	**Interdisciplinary culture sharing ways of improving patient outcomes, and reducing errors**
Interruption ward staff getting staff {……..} (door closed)	
Participant so when we are having a new batch this complaint was ongoing {…} so different doctors would come to the ward they don't know the culture of the ward so ummm{…} what happens is when we are having a new batch of doctors our managers tends to have a list of all what we have put in place the things we have in place that we want doctors to do we give them a copy of [..] for them to read through ummm about what they need to know in regards to the ward if they prescribe something they need to tell the nurses if anything they need to communicate they and if the write something down they also have to	**Sharing Culture of the ward** - New doctors - Reduce errors - Ward culture - Handover - Face to face communication

verbally handover it to staff {….} Before staff can go to see the book so that was quiet {……..} umm it was very effective if you prescribe anything now that I don't know they have to find me to say oh .. {nameXXX) I have prescribed Researcher, so they can't just write it up and walk off as a doctor on this ward? ummm {….} So, when you say it was initiated was it someone who had seen this done somewhere else or was it someone that came up with the idea {……}	
Participant I think I came up with the idea umm {…} ummm we just were talking about the it was just that {……..} something that I ummm{…} I just talked about it as a, something needs to be done it would be a good idea to put to staff which they {……} there was another one that I initiated as well as sometimes when we are handing over at night it was quiet late for everyone when .{…} umm when everyone is tired and to reach their patient they will just be there so we talked about ok how we could improve this handover staff so that we could ensure that that that there was someone there always to look after	**Identifying solutions to problems** Feelings- Tiredness' at the end of shifts Identifying behaviours to improve safety -Reducing downtime at handover period - Individual handover patients - One person at a time handover

the patient {……} **so I talked about why can't each staff {…} after 10 minutes of handing over while others have to look after the patients then ..{…} umm it's a way of ensuring that the patients is safe rather than everyone (hand gesture -point to this room) in here at handover ummm {…} which is quiet effective which we have implemented** Researcher, so you mean every member of staff comes in here and hands over their patients to the night staff rather than everyone being present they come in hand over and go back out on to the floor is that correct? Participant yes {…} Researcher, so when you said about the culture of the ward I am interested in what you said and you said this is specific to this ward what would you say the culture of this ward is? Because you're a member of this team? umm how would I know if this ward is different from the next ward here Participant Because the things we implement here are the communication	- Increases number of staff on the floor at handover

in the handover I don't know about the others wards I don't know if they do the same I haven't been worked elsewhere in this hospital {…..} but I have done bank in another ward where drugs wre prescribed but I hadn't been told about it the seniors staff knew I wasn't told and as well in another ward only one staff like the sister has to handover patients that you don't know not worked with {…} ummm. I find that very challenging because I can't handover somebody else patient that I have not looked after If I don't look after that patient I can't ummm I can't know anything about that patient …. I can't just look at the handover book and handover {…} you have to look at the physical observation see even if it's not written you can come to and say ohh I noticed this that today about Mrs o … she didn't eat all or she was funny or she was aggressive or so I can't explain that if I haven't looked after them rather than someone just telling me ohh, she was aggressive what was she saying give examples be able to explain for me it's vital to {……..} That I look after that patient Researcher, so you have two examples of initiatives 1 communicating with	**Providing detailed handover of care by person giving the care** - Knowledge of individual patients **Utilising experience from elsewhere** - Different culture on different wards - Provide additional information based on experience - Knowing your patient

each other on the ward and doctors really not passing on the information And the other main one as how you handed over patients at night Participant Yes Researcher, that staff handover their own patients Participant Yes that's correct Researcher, that the majority of staff stay on the ward and only handover their patient's in turn Participant Yes and the other one that all stated when I came here {….}. I have to bring this experience to light during my university days and when I worked in other hospitals sometimes the weight and infection control monitoring weren't done because they wasn't time so when we talked about that I was doing it every week say sunday {….} ummm no matter how busy you were you had to weight all the patients in the ward even the patients I had weighted 3 days ago {…} and those I had not weighted because we were quiet busy we chose Sunday because it not really ummm {…} really busy not so many doctors here	**Using past experience from past experiences in different settings** Issues work left undone Initiatives to ensure compliance

so why can't we do the infection control like the swabs weighing all the patients so I said it this way we know that there are patients that are not eating and we can monitor their weight it might be as result they are referred to the dietitian there are some patients who may be might have and MRSA that we hadn't noticed,{…} because it was done more than a week ago ummm or 4 days ago {……..} so by initiating it to be done every Sunday we are able to know who is flagged up who need the dietician who needs to be reviewed / referred so at least that way we are ensuing the safety of the patient everything is in place that like involving other professions to care for the patients Researcher, has that made a big difference? And impact Participant yes … yes Researcher, so do you think you have come with lots of ideas has everyone been very receptive to these ideas Participant Yes, I communicated it like share it as a vision to the team have shared it with the team so yes, I think this might be good get an opinion	**Regularising aspects of care to ensure compliance** **Raising issues related to care and safety** **Shared Vision** -Communication of this to others team members

maybe they think is it ok? Are least if it's the majority {…..} umm why not Researcher do you think everyone is receptive to this Participant yes Everyone is doing it Researcher did you need to convince people Participant yes Researcher how does it work on this ward you come with your idea? Participant Everyone comes with ideas ummm {…} this is about team work it's about collaboration work what we are not doing well when someone sees we are not working well someone might spot it and it might be the doctor it might be the physio it might be the OT ummm {…..} at the time they call me to say why can't we do it this way that is why it's all about the patients it's not about us. Researcher how do you get people to come forward with ideas or actively encourage them to come forward if the spot things it's one thing for you to come forward but how do you get	**Encouraging observation of deficits in care by the team & wider MDT** - Among the multidisciplinary team - Occupational therapy - Physiotherapist

others to come forward with ideas ummm {…} in relation to what you're doing well and not so well Participant yes Researcher So what kind of forum do you use or how do you get them to raise things is it when the see things who either at the time or later? ummmm {…….} Participant Sometimes this happens through audit because areas you are failing on like infection control or why on your wards patients keep having MRSA so somebody from other professionals might come and say why are where we are lacking so that's an area we need to look into to say what are we lacking in this areas because we are ensuing the patient safety so we are able to put things in place we talk about things {…} we all learn in different ways we all think in different ways some might just say why can't we do it in this way do you understand their will be those that think it's a good idea to try it {..} we try it maybe it works . So, if doesn't work somebody might say I don't think it's working it's not	**Seeking alternative ways of developing care in multidisciplinary settings** **Seeking opinions regarding defects** identified by audit in the multidisciplinary team

effective why can't we just change it and as well if some staff	
For me I trained at { medway} there is a lot of things they do their because it was under the CQC and I was on my training when the trust was under special measures and needed a lot of improvements a lot of things were implemented it works there because since I came here I see that things that worked there I haven't seen here so we tend to talk about its so like I have seen this work elsewhere why can't we do it my manager is quiet good she doesn't like she is doesn't like {…….} to say oh no because I am a manager I am the boss what I say you need to do it	**Learning from CQC outcomes** **Using experiences in new settings** -CQC - Consequences **Supportive manager**
Researcher is that the ward sister Participant yep Participant she doesn't say oh I am the boss anything I choose is what you do no she likes use to be involved bring your own ideas why don't we try it	**Encouraging staff to bring forward ideas**
Researcher so you feel you could walk in the sister's door and say I spotted this	**Leadership style** - Personality traits - Approachability

Participant she is very approachable, and she listens to you and she will say we can try it to see how it works on the way we review it to see how if it works Some of the sisters do audits very week sometimes I redo the audits often and keep educating the staff Researcher so does everyone in this ward like say you said your responsible for fluids and vital signs has everyone got their own area to look after? Participant Yes everyone has an area Researcher did you get to choose what you did? Participant No you're given the areas every area that they know you are good at, you will be able to do it so they pick that up. People are observant people here are very observant they might say its only {…} me that's doing the fluid balance charts correctly and is doing it because I remember during my training being assessed on it and very since I have to do it properly and ever since it's been my strength Researcher would you spot when other people in other bays weren't doing it correctly	**Education of staff** **Audits compliance** - **Ownership of audits** **Management** **Utilising staff strengths in solving problems** -Knowledge of staff -Knowledge of individual strengths

Participant Yes Researcher Even during a shift Participant yes sometimes I have to stay behind an hour to teach them the night staff are coming as we tend to have agency in the night with only one permeant member of staff so I tend to stay behind to be able to say how it's done I don't want to see it done wrongly so I teach them this is the way I want it done Researcher so do you think since everyone has got their own audit area Participant yes Researcher Do you think that making them look after an area makes them responsibly for making sure that other people complete that? Participant Yes because they have to ensure the patient safety {…} people have to take lead not everyone can be a leader but everyone can lead in a different area in a different way Researcher do you think that changes the culture of this ward by making people responsible	**Observation of other staff compliance** -Identifying poor performance -correcting this / pride in work/ward Utilising experience in recognising patterns - Poor performance **Matching strengths with tasks as a way of improving standards** **Roles on ward of staff** - Leadership - Responsibility

Participant Yes I think so we are all responsible because the other sister is responsible for the audit of infection control which she has to infection control all the time like today when I spotted a commode in the toilet sluice room that wasn't clean I {…} because I know she is responsible I came to her and said to her if infection control comes to hear and sees it you are responsible it's not clean she now has to get up and start chasing who has left it like that Researcher so you pre-empting things happening Participant Yes Researcher and do you think even if it's not your patient that your responsible Participant as long as you're on the ward your responsible for every single patient that's what has been communicated to everyone here, I don't know about or speak about other wards but that's the way it is here Researcher so if I was to come in here and say can I see such and such a Patient you would sort	**Ward Culture** - Shared responsibility - Ownership of audits **Emotional ownership in relation to tasks and performance** **Direct and indirect ownership of the care of patients within the ward environment** **Responsibility for other patients**

Participant if I know that nurses isn't here yes, I would take responsibility at that particular time Researcher if someone said this ward, what would a safe ward look like {….} Participant {…….} Researcher describe it to me	
Participant a safe ward is one where the patients come first, you communicate, {…..} Effectively involve the patients in the decisions if they can ensure that every other staff make appropriate decisions you spot something that's not right you have to safe guard the patient because you are responsible to safeguard that patient at that particular time, also confidentiality it needs to be maintained all of the time for the patient and as well as that patient medication is correct documentation it has to be right Researcher would a safe ward be one that doesn't have incidents or near misses	**Patient centred care** **Effective communication** **Safeguarding** - Correct medications - Confidentiality **Identifying Weakness**

Participant in any ward there must be a weakness s so you can't say a safe ward does not have a weakness you have your strengths but you have to look at your weakness So those ones I have talked an about we do audits etc. You have to work on that weakness like to communication between doctors and nurses we know we might be lacking in these areas work to bring this back make it function better in relation to patient safety because that can affect it it's all about communication Researcher is that affected by lack of staff Participant yes, we are all under pressure when we are short of staff but we have to work as a team like just a while ago I wasn't looking after a patient I went to assist the nurse also needed a hand so I had to go as well under pressure yes if you have a team that work well under pressure Researcher so how is it different when you're under pressure how does the team work give me an example? Participant Like this morning at hand over we already know we are short of	-Areas for improvement - Communication between Doctors and Nurses **Recognising strengths and weakness and addressing this is the only was to improve** **Magic number as regards to staffing to ensure safety** - Skill mix - Teamwork - Supporting staff **Emotional impact of work** **Feelings: tired and stressed** - Struggling with workloads

staff so communication to each other is key if I am stressed or over tired there is no way I can do my job properly so we all have to help each other delegating to say please if you are free can you come to help me {…..} communication is important where we are under pressure or short of staff if I don't know the area you are struggling with maybe your struggling with one patient like let me give you an example of what I did today I was working in a different bay I can do cannula and the other nurse could not do cannula she is struggling because the patient needs IV fluids I have to prioritise my own care so because this patient is nil by mouth and is not eating and the patient I am with is not in any pain because I have done observation and physical OBS why can't I just go and do the cannula because their patient needs fluids Prioritising your work helps in an environment that you are short staff in helps doing things that are more needed then things that are less needed are because my patients want in pain and I asked them and they said no and they answered no I know that I can hold off giving them drugs at that time even though they are on it 4 times a day and I go to help the patient needing fluids she is very hungry as she hasn't	- Support colleagues - Using each other's skills **Mitigating the safety issues by prioritising the work** **Prioritising work to mitigate** - Short staffed **Identifying the priorities in terms of** - Tasks - Patient needs - Safety issues

eaten since morning and that cannula matters for the patient to have fluids and antibiotics that patients was another team members no we have to work as a team I can't say I have my own workload I have to go and help them we have to work together Researcher so who is the instigator of this team work is it the team leader the personalities Participant No it's everybody it's the team I am a sister as well a junior one like we have one that's taking the lead today you have to go and ask you have to use your own initiative as well you have to know when your colleagues are struggling, keeping these things to your self is not really a good idea you have to in an environment that is so stressful you have to so reaching out as well to your colleagues to say oh what do you want me to do? Researcher you say you work really well as a team here is it because you all know each other very well because you socialise etc. Participant we don't really socialise because when you finish this job your	**The role of teamwork in managing workloads and getting work done** **Leader - Knowing the team** - Intervening when required - Identifying struggling staff - Sharing workloads - Using own initiative **Stressful environments** Recognising when others need support -Offering support

tired but we do have a good quality relationship with the staff here when it comes to team work we do have quality relationships because when it comes to working together we get on #when I joined it was not quite like this It had to be boasted up Researcher who boasted it up? Participant I am very friendly I am very loud for me I am every bodies friend I don't take this personally I just go we work together because even if I wasn't a nurse I know that team work even in your home is important when I was working as a career I knew that team work is vital so I played a role. I try to find a way of involving everyone so I go to people and say can you give a hand to that person and so on like give me a hand and I can do something for you Researcher are you saying there are people in the team that are pivotal there the ones that gel the team Participant yes like today I am the sister the other member of staff is agency so we often have agency staff here so you have to involve them in the team you	**Teamwork** - Building quality relationships Personalities - Friendliness - Past experience - Involve everyone **Feeling : Valued** **Tension between agency and own permeant staff**

cannot just say because they are agency they should do their own area only you still involve them because if anything happens in your ward you will the one that's accountable before the get the agency at that time because you will be available and they will be asking you	- Being accountable for agency staff - Taking responsibility for others care - You will be accountable for their actions
Researcher do you think the leadership comes from the ward sister the senior one her and others or other members of the team	**Importance of leadership**
Participant I think it's combined between everyone because everyone has a different form of leadership no matter who or what role you have	- Style of leadership dependant on situation and what is required
Researcher what type of leadership is here?	
Participant we have transformational leaders here I believe it depends on the situation you are in your sense of leadership will come out we have different types of leadership here	**Transformational leadership on the ward** - Style to suit situation
Researcher And it's good to have all those different types of leadership styles	
Participant it's good to have different leadership Styles at different times {.....)When you have that leadership style to	

ensure patient safety It's good to initiate all ….To say ok all democratic leader maybe somebody is not doing what you want them to do on the particular shift and you need to use that style of leadership you know for me with students and staff you know {.....)If they're not doing something I'm teaching them as a transformational leadership style you don't criticize them you just try and encourage them in regards to the reason that they have to do it {….} tell them if something happens to the patient we have to go a long way Researcher Are you saying that you change your leadership style {….} depending on who you're working with Participant Yes I change my leadership style depending on who I'm working with Researcher How do you decide that because some of our staff are a bit laid back Some you have to use an authoritarian style of leadership it all depends on who you're working with to make sure the shift is effective to make sure the care that you are providing is safe at all times. You have to change your leadership style at all times So just…… Researcher so do you think having all these different people agency bank etc coming on does this make you better at recognising them Participant yep it makes you better the moment you start your shift in the morning the type of person I am if I am	**Recognising that different leadership styles required to maintain patient safety** - To ensure compliance choose a style - Democratic - Transformational with educating Style of leadership chosen can impact on team's response to identification of poor practice or compliance -Importance of not criticizing people but encourage them to understand impact of behaviours - strengths and weakness of different styles - choose style dependant on desired outcome and who you're working with **Knowledge of team strengths and weakness and how they work and what style achieves the outcome required** / behaviour

happy then I am laughing within the first 3 mins and I know how the shift is going to play out that day. I have a very strong instinct. So, I tend to follow my instinct and adjust. If I work with one patient I reflect a lot every patient is different it's not the same care that I will provide to patient 1 and then patient 2. So, it's not the same care everyone is different if we want to ensure safety. I am constantly adjusting to things. I see look this is not going right I reflect. I reflect all the time I have to go back and think this is not right I have to do this I have to do that Researcher, do you think there is a difference in relation to safety on your ward when you have your own staff on as opposed to bank or agency staff, are you looking closer or working tighter together Participant yes, I am working tighter I am looking closer we are used to agency working here and I am allocating staff I have to look very closely to make sure that they get supported well and whom I am delegating or allocating when your delegating staff you have to know that the team you are delegating to work together are competent. And that the can maintain patient safety. I know we have some staff	Style of leadership selected can make care safer and more effective Feeling: happy when shift goes well Instinct for how the day will go dependant on the feeling and intuition for the flow of the shift **The role Reflexivity and reflection in care delivery** -Pattern recognition - adjusting care accordingly - checking and rechecking

we do have them here that need support when you're working or your pushing I allocate them to myself. I know that I can watch them and push them at the same time to do what's right. It depends on who you're working with we do have new ones here two of them they are still orientating themselves to the ward. So, if I am here we communicate we all talk together ok I will but this person with you, for me I have trained a lot of staff even the staff nurses that are here you can ask Laura my manager why people want to work with me because I am just so… the work is stressful but I don't portray it do you understand, I just keep going I know when to take my break I know when I am getting tired so I don't get tired. I know my limitations for me to ensure the patient safety. When you recognise this as well it helps you to know if you don't t know your weakness this If not your putting the safety of your patient at risk? The reason is that when you are tired you can't do things in the proper way, because your tired, For me you have to know your strengths and weakness and safety. Communication and team work go a long way as well and team work. Researcher, with that in mind you said that everyone is encouraged to bring forward safety issues. Participant yes that correct Researcher, do you have any meetings regarding your audits say for example I've seen that you've had a number of	**Knowledge of competence of staff in their ward and within the team in relation to safety** - Support - Allocation / delegation - knowledge of team - New staff orientating themselves - Communication between staff **Recognise tiredness in oneself** **Know your own limitations** **Recognising areas of weakness**

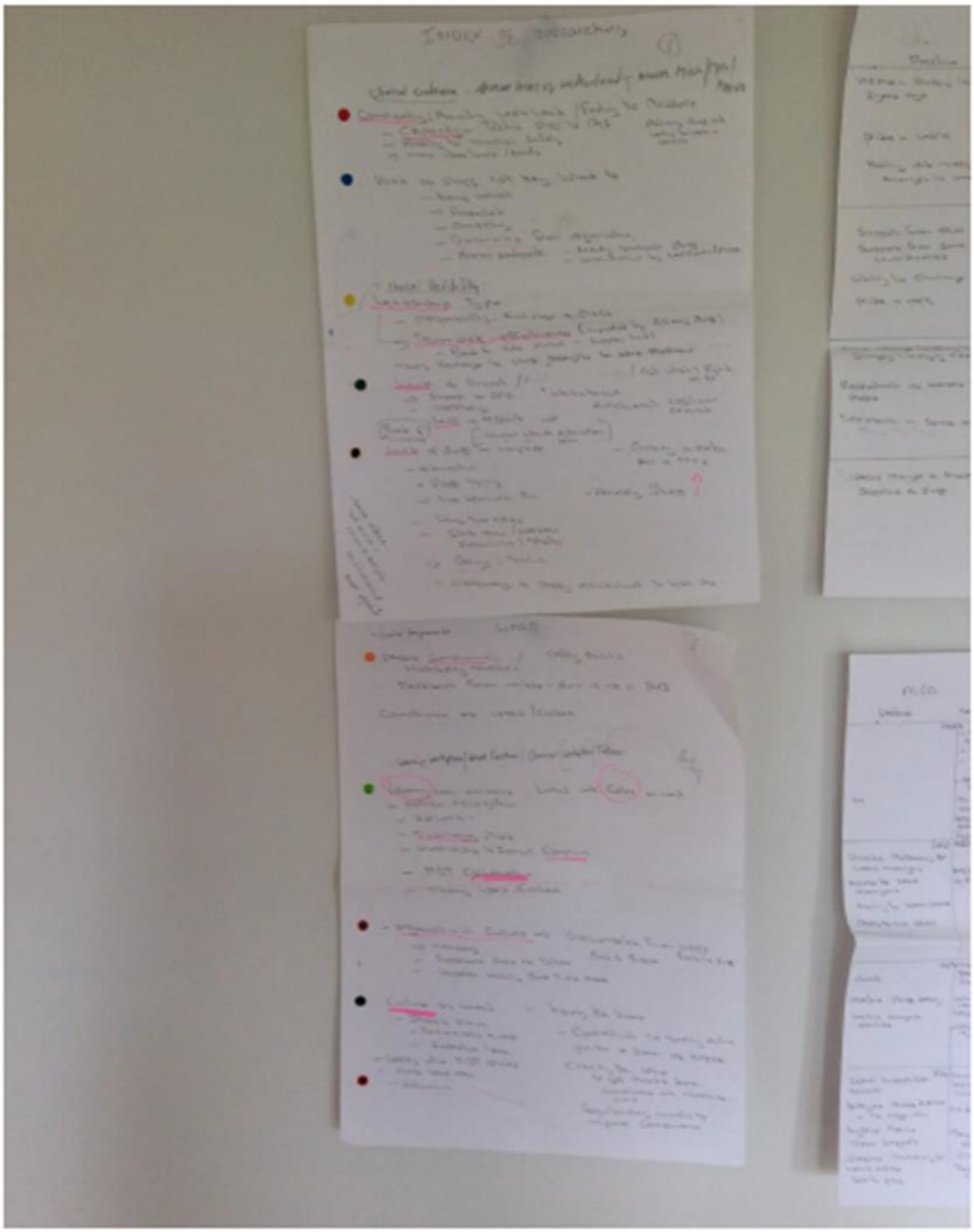
falls in your area because that's something that you are trying to do better on so for example if you're having a number falls even though it's not down to your staffing levels etc does that have a bit of a negative effect on your stuff? Participant, yes that does impact on the morale of the ward, Researcher how does that impact on the culture within the ward? . Participant, because if we know patients are having falls then we have to monitor them and ward as always and if you see our audit on the falls the other sister is doing and because you have to do it online and you have to see how many you're having. Because the whole point of having audits to be able to show what you need to be able to do to improve things within your ward. So, you can see for example that those patients are at risk of falls so for example today I'm working in a back bay and we have patients in there who are likely to fall so what we have to do is to put extra staff in there so we have a scoring system Researcher, is that your acuity score	**Recognition of circumstances and its impact and effect on your performance** - Limitations - Strengths - Impact of tiredness om judgement Communication Teamwork

Participant, so for example you're often working with one trained member staff with one healthcare assistant but when you're in one of those areas where you need extra help then you have to locate or allocate an extra member of staff into those areas. Are you might have to get a one-to-one care for the patient so that's a way of ensuring that we have that we reduce the falls that we have.	**Negative impact of incidents on staff morale**
Researcher so even if you put all these measures in place and you still have falls does that continue to have an impact on how people work within the area.	**Strategies for circumvention risks of falls**
Participant yes of course it continues to have an effect on people, and as you know we are frailty ward and we obviously get lots of patients with dementia so we know that these patients are going to be more likely to have issues So even know for example when we're admitting patients in and we are doing just the basic thing just like blood pressure etc we now do a lying and standing blood pressure, And we can identify those patients who have a difference in blood pressure and to also add more likely to have falls so we can identify the at risk patients so when	**Acuity levels of patient need additional staff** **One to one care to reduce falls in patients at risk**

we done all of this and we've identified this patient then we have to talk to the doctors about and we have to look and review the medication is there because sometimes it also helps in trying to reduce the falls so there are lots of ways that we can try and communicate with each other to reduce even further the problems that we have with the patients that we encounter Researcher, so what makes a good team on this ward. Participant, a good team is one where everyone works well together everyone is approachable everyone respects people and everyone allows people to have an opinion that they can share and you have to remember that it's important have a friendly environment if you make everyone feel welcome and that you don't make them too scared to talk to people	**Complexity of patients contribute to safety risks** - Patient frailty - Identifying risks by using tools observation that identify possible issues - Blood pressure changes indicating postural issues Increased risk of falls - Strategies to reduce likelihood of falls in these patients **Communication strategies to reduce falls more** **Good teamwork relies on** - Respect for all - Approachability

	- Value everyone's opinion - Friendly environment - Welcoming approach to new comers **Reduce fear by reducing intimidation**

Appendix 9: A3 Charts of colour coded themes



Appendix 10: Ethics

London South Bank
University

Direct line:020 7815 8368
E-mail:hscsep@lsbu.ac.uk
Ref: hscsep/16/2

Ms Marie Culloty

Friday 8th July 2016

Dear Marie

RE: A comparative study of ward safety within one NHS Trust.

Thank you for submitting this proposal and for your amendments to the Participant Information Sheets, Consent form, interview schedule and Invitation Poster made in response to the reviewers' comments.

I am pleased to inform you that full Approval for this study has been given by Dr Martin J. Benwell, on behalf of the School of Health and Social Care School Ethics Panel.

If you wish to make any changes to the research protocol or any of the documents related to this study you MUST seek approval from this panel before making those changes.

Please include your reference number (hscsep/16/2) in any future correspondence.

I wish you every success with your research.

Yours sincerely,

Dr Martin J. Benwell

Associate Professor
Chair, School Ethics Panel
School of Health and Social Care
London South Bank University
103 Borough Road
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Appendix 11a: HRA Approval

Associate Professor of Adult Nursing
London Southbank University
Havering Campus
Goldcrest Way
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Romford RM3 0BE

Email: hra.approval@nhs.net

15 November 2016

Dear Miss Culloty

Letter of HRA Approval

Study title:	**A COMPARATIVE STUDY OF WARD SAFETY WITHIN ONE ACUTE NHS TRUST**
IRAS project ID:	**206373**
REC reference:	**16/HRA/4345**
Sponsor	**London South Bank University**

I am pleased to confirm that HRA Approval has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications noted in this letter.

Appendix 11b: HRA Amendment

IRAS Project ID:	206373
Short Study Title:	A COMPARATIVE STUDY OF WARD SAFETY WITHIN ONE ACUTE NHS TRUST
Date complete amendment submission received:	26/09/2017
Sponsor Amendment Reference Number:	NSA 1
Sponsor Amendment Date:	25/09/2017
Amendment Type	Non-substantial
For new sites in Northern Ireland, Scotland and/or Wales only:	Please start to set up your new sites. Sites may not open until NHS management permission is in place.
For new sites in England only:	For studies which already have HRA Approval: **This email also constitutes HRA Approval for the amendment, and you should not expect anything further from the HRA.** Please start to set up your new sites. Sites may not open until the site has confirmed capacity and capability (where applicable). For studies which do not yet have HRA Approval: HRA Approval is pending and you will receive confirmation of HRA Approval. You can start the process of setting up the new site but cannot open the study at the site until HRA Approval is in place and the site has confirmed capacity and capability (where applicable).
For NHS/HSC R&D Office information	
Amendment Category	**C**

Appendix 12: Participant Information sheets for interviews

Study title: A comparative study of ward safety in one or more acute NHS Trust

IRAS Reference Number 206373

I would like to invite you to take part in a research study for my PhD project to investigate what contributes to improving patient safety within your hospital. Before you decide you need to understand, why the research is being done and what it will involve. Please take time to read the following information carefully. Ask questions if not anything you read is clear, or you would like more information.

What is the purpose of the study?

The aim of the study is to find out what contributes to improving patient safety at all levels within one or more Acute Care Trust. The NHS is aiming to reduce avoidable harm by half by 2017; this is set against a backdrop of increasing resource pressures, changing demographics and greater public expectations. The links between patient safety and organisational culture and patient outcomes are not clearly understood.

Why have I been invited?

You have been chosen to take part in this study as you are a member of the clinical staff / management from the wards chosen.

Do I have to take part?

It is up to you to decide whether to take part. If you decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. You will have an opportunity to talk to the person conducting the research so that they can give you more information and answer any questions you might have. You are still free to withdraw from the study at any time without providing a reason.

What will be expected of me if I take part?

If you are willing to participate, you will be invited to an interview about your experience of safety culture within your work place. The interview will be arranged at a mutually agreeable date and time so as not to interfere with your working commitments and will either be face to face or by phone, or internet and will last

no longer than 60 minutes. The interviews will be audio recorded. Recordings will be store in a locked cabinet within a locked room at London South Bank University, school of health and social care. These will be erased following transcription and data will be stored securely in a password-protected computer within a locked office at London South Bank University. All data will be anonymous and will only be available to myself and my research supervisors.

What are the benefits to taking part?

This project may benefit you and other hospital staff by allowing them to highlight aspects of practice that may contribute to improving safety for patients and may provide information and evidence on which future strategies may be used in your organisation. Some people also find it beneficial to talk about and share their experiences.

What are the possible disadvantages and risks of taking part?

It is not anticipated that there will be any disadvantages in taking part or suffer any risk from the study. If at any point information is disclosed that has safeguarding implications Trust policy will be followed in relation to escalating concerns. If at any point in taking part in the study you find talking about your experiences causes you distress, and that you need additional support you can be referred to the Trusts occupational health / counselling service.

What if something goes wrong?

If you have any concerns about any aspect of this study or experience any distress at or after the interview or have any complaints about the way you have been dealt with during the study or other concerns you can contact Dr Louise Terry at 020 7815 8405, who is the Academic Supervisor for this study. If you remain unhappy and wish to complain formally, you can contact the Chair of the School Ethics Panel at hscsep@lsbu.ac.uk

Will taking part in this study be kept confidential?

All information which is collected about you during the course of the research will be kept confidential. My supervisors Dr Louise Terry and Professor Sally Hardy may look at relevant sections of data collection during the study all data will be anonymised. Personal quotations from the interviews may be published these will be anonymised. However, you should use your own judgement about what to share. If any issue of unsafe practice emerge that require action, these will be

discussed with you in the first place and if necessary, action taken in accordance with the Nursing and Midwifery Council guidance and /or you're employing NHS trust guidance. The data will be kept for 3 years following completion of my thesis on a password protected computer within a locked room at London South Bank University.

How do I take part?

Contact me (Marie researcher on the below details) either by email or by telephone, I will answer any questions you may have and then we can arrange a suitable time, date and venue if you are happy to take part.

What will happen to the results of the research study?

The data will be analysed, written up as a summary report for my thesis. It has been reviewed and ethically approved by the School Ethics Panel in the School of Health and Social Care at London South Bank University and IRAS. A copy will be given to the Clinical Governance Risk Management Unit of the Trust and subsequent dissemination or publication of findings will be subject to trust approval. Any subsequent publication of results or reports will ensure that your identity will remain protected at all times.

Who has reviewed the study?

This study has been supported by London South Bank University, 103 Borough Road, London SE1 OAA. This study has been reviewed by the NHS and the School Ethics Panel in the School of Health and Social Care at London South Bank University

Further information and contact details:

Marie Culloty
Researcher and PhD student,London South Bank University
Email: cullotma@lsbu.ac.ukTel: 020 7815 5925

Participant Information sheet for senior staff

Study title: A comparative study of ward safety in one acute NHS Trust
IRAS Reference Number 206373

I would like to invite you to take part in a research study for my PhD project to investigate safety culture within your hospital. Before you decide you need to understand, why the research is being done and what it will involve. Please take time to read the following information carefully. Ask questions if not anything you read is clear, or you would like more information.

What is the purpose of the study?
The aim of the study is to find out how patient safety is impacted by different practices at ward and at all levels within an organisation in order to identify what contributes to ward safety. The NHS is aiming to reduce avoidable harm by half by 2017; this is set against a backdrop of increasing resource pressures, changing demographics and greater public expectations. The links between patient safety and organisational culture and patient outcomes are not clearly understood.

Why have I been invited?
You have been chosen to take part in this study as you a senior member of staff with responsibility for patient safety in the wards that are being included in this study or within the wider organisation.

Do I have to take part?
It is up to you to decide whether or not to take part. If you decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. You will have an opportunity to talk to the person conducting the research so that they can give you more information and answer any questions you might have. You are still free to withdraw from the study at any time without providing a reason.

What will be expected of me if I take part?
If you are willing to participate, you will be invited to an interview about your experience of safety culture within your organisation. The interview will be arranged at a mutually agreeable date and time so as not to interfere with your working commitments and will either be face to face or by phone, or internet and

will last no longer than 60 minutes. The interviews will be audio recorded. Recordings will be stored in a locked cabinet within a locked room at London South Bank University, School of Health and Social Care. These will be erased following transcription and data will be stored securely in a password-protected computer within a locked office at London South Bank University. All data will be anonymised.

What are the benefits to taking part?

This project may benefit you and other hospital staff by allowing them to highlight aspects of practice that may affect safety for patients and may provide information and evidence on which future strategies may be used in your organisation. Some people also find it beneficial to talk about and share their experiences.

What are the possible disadvantages and risks of taking part?

It is not anticipated that there will be any disadvantages in taking part or that you will suffer any risk from the study. If at any point information is disclosed that has safeguarding implications, Trust policy will be followed in relation to escalating concerns. If at any point in taking part in the study you find talking about your experiences causes you distress, and that you need additional support you can be referred to the Trusts occupational health / counselling service.

What if something goes wrong?

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How do I take part?

Contact me (Marie researcher on the below details) either by email or by telephone, I will answer any questions you may have and then we can arrange a suitable time, date and venue if you are happy to take part.

What will happen to the results of the research study?

The data will be analysed, written up as a summary report for my thesis. A copy will be given to the Clinical Governance Risk Management Unit of the Trust and subsequent dissemination or publication of findings will be subject to trust approval. Any subsequent publication of results or reports will ensure that your identity will remain protected at all times.

Who has reviewed the study?

This study has been supported by London South Bank University, 103 Borough Road, London SE1 OAA. This study has been reviewed by the NHS and by the School Ethics Panel in the School of Health and Social Care at a London South Bank University.

Further information and contact details:

Marie Culloty Researcher and PhD student
London South Bank University
Email: cullotma@lsbu.ac.uk Tel: 020 7815 5925

Thank you for reading this information sheet and for considering taking part in this research

Appendix 13: Consent form

CONSENT FORM

UREC NO, HSCEP16/2

Title of study: A comparative study of ward safety in one acute NHS Trust

IRAS Reference Number 206373

Name of Researcher: Marie Culloty

Please initial box

1. I confirm that I have read and understand the information sheet dated (….) for the above study and have been given a copy. I have had the opportunity to consider the information, ask questions of the researcher and have had these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason. ☐

3. I understand that I will be recorded during the interview, after transcribing you will immediately destroy the recorded digital file. ☐

4. I understand that my supervisor's Dr Louise Terry and Professor Sally Hardy may look at the relevant sections of data collected during this study. I give permission for these individuals to have access to my transcript. ☐

5. I have been informed about what the data for this study will be collected for and how long it will be kept for. ☐

6. I understand that individuals within London South Bank University and individuals with the clinical governance department of [redacted] Hospitals Trust may look at the relevant sections of anonymised data collected during this study. ☐

7. I agree to take part in the above study ☐

Name of Participant (Block Capitals) … ……..

Signature…… ……. Date ……

As the Researcher responsible for this study I confirm that I have explained to the participant named above the nature of the proposed research to be undertaken

Researchers Signature ……. Date ……