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Risk perceptions, decision-making and patient safety in the NHS a qualitative study

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Risk perceptions, decision-making and patient safety in the NHS: a qualitative study

2019

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For Ben and Trevor, with love and gratitude

ABSTRACT

Background

Insufficient is known about how individuals perceive, assess, select and act upon specific threats from amongst the multiple hazards in their environments. This study explored these issues through an empirical study of healthcare staff who have a key role to play in recognising, and ameliorating or avoiding risk to their patients' wellbeing. It was hoped that examination of the findings would allow some conclusions to be drawn about the possible impact of the perception of multiple threats on patient safety, improvement of which is a key objective for the NHS.

Objectives

The objectives of this study were to explore how healthcare staff perceive and prioritise multiple threats in their working lives, to identify the possible impact of their responses on patient safety, and to increase theoretical understanding of links between multiple risk perception, decision-making and behaviour.

Methods

The research involved a qualitative case study of healthcare staff in a single NHS acute hospital trust. Data was collected using participant observation, in depth interviews and a focus group. Preliminary observations took place on 19 wards. Three of these wards were chosen for further observations and 40 ward based healthcare staff were interviewed. In addition 27 other staff who had recorded staff shortages as an adverse event on the hospital database were interviewed retrospectively about the incident and the choices they had made. Finally, a focus group of 19 senior managers was held at the end of a regular meeting to access their views about staffing on wards.

Results

Participant healthcare staff identified multiple threats in their working environment, both to others and to themselves. All participants identified reductions in quality of care because of staff shortages as the major threat to patient safety and this threatened participants' self concepts as 'good' nurses. Most saw themselves as unable to change this situation and appeared to tolerate the stress this caused by revising their self concept to see themselves as 'doing their best'. Unexpectedly, those participants who responded to staff shortages by recording an adverse event, did not do so because of a changed assessment of the degree of risk involved but as a sudden emotional reaction to a previously tolerated situation.

Conclusions

The findings led to the development of a novel process model of decision-making under risk which may be more widely generalizable.

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ACRONYMS

BPS British Psychological Society

CHI Commission for Health Improvement

CQC Care Quality Commission

DoH Department of Health

GMC General Medical Council

IRAS Integrated Research Application System

IRGC International Risk Governance Council

NAO National Audit Office

NHS National Health Service

NICE National Institute for Health and Care Excellence

NPSA National Patient Safety Agency

NRLS National Reporting and Learning System

PIN **Personal Identification Number**

PSM Problem Structuring Methods

QIPP Quality, Innovation, Productivity and Prevention

QRA Quantitative Risk Assessment

SARF Social Amplification/Attenuation of Risk Framework

SEU Subjective Expected Utility

WHO World Health Organisation

UK United Kingdom

US United States

Chapter 1 Introduction

***"Primum non nocere"* - first, do no harm**

The risk of harm has always been an issue in healthcare. The phrase above has rung down the centuries and is widely used in relation to the care of patients (Smith, 2005). Although often erroneously attributed to the Hippocratic Oath[1], or Florence Nightingale[2], it is thought to have originated in the Middle Ages [3]. However, despite its increasing (Smith, ibid) and ubiquitous (Sokol, 2013) use, both colloquially and in a vast literature on the subject[4], avoiding patients being harmed while receiving healthcare, now most frequently expressed as ensuring 'patient safety', has not proved simple to achieve in practice.

The Cambridge English Dictionary defines harm simply as "*physical or other injury or damage*". However, the concept of harm in "*primum non nocere*" is inextricably associated with human agency, '***do*** no harm'; and it is the idea that the people involved in delivering healthcare are able, and may even be willing (Walshe, 2018), to act in a way which is detrimental to patient welfare, which has exercised so many for so long. As Vincent (2006, 2010 p 19) points out, it is not just discrete errors and omissions which are of concern, but some of the failures of care involving harm to large numbers of patients which have plagued the NHS and other healthcare systems in recent years[5] raise concerns about the safety of the healthcare system as a whole.

[1] Even by the WHO on the cover of its 2005 publication on patient safety.
[2] A similar English phrase "*do the sick no harm*" is found In 'Notes on Hospitals' (Nightingale, 1863)
[3] The Latin phrase is variously attributed to a number of physicians including Worthington Hooker (Sharpe and Faden, 1998) and Thomas Sydenham (Inman, 1860). The words[3] "*The physician must have two special objects ... to do good or to do no harm*" appear (in Greek) in Hippocrates' book 'Aphorisms' (Fishbein , 1933 p14)
[4] A Google search found over 1,000 papers with "first do no harm" in the title and over 2 million with the phrase appearing somewhere in the text.
[5] For examples see reports of some of the official enquiries: Kennedy (2001), Francis (2010, 2013), Gosport War Memorial Hospital. The Report of the Gosport Independent Panel (2018)

1.1 The 'patient safety' problem

The scale of the problem was first recognised in the early 1990s when an influential study revealed that large numbers of patients suffered harm during their stay in hospital (Brennan, et al 1991; Leape, et al 1991). This finding, and in particular the major report "To Err is Human" (Kohn et al, 1999) from the US Institute of Medicine which followed, prompted a worldwide response. Vincent (2010 p 25) calls it "*the single most important spur to the development of patient safety*". Huge publicity was given to the assertion in the report that up to a million US hospital patients per year were dying as a result of medical errors (Leape, 2000). In the US, the UK and elsewhere, governments reacted by mandating systems for acquiring contemporaneous, rather than retrospective data on adverse events (or 'incidents', as they are now termed); to try to prevent, or at least reduce their occurrence (Leape, ibid; DoH, 2000, 2001) by providing information which would enable learning from past mistakes.

Despite the implication in the title, "To Err is Human" (Kohn et al, 1999), it has been clearly demonstrated that individuals are rarely wholly responsible for adverse events and subsequent investigation often uncovers multiple causes (e.g. Turner, 1976,1978; Perrow, 1983,1984; Reason, 1990, 1995, 1997, 2000; Wachter, 2008 p 17). However, in the immediate aftermath of disastrous happenings it is almost routine to blame human error for things that have gone wrong (Vincent, 2010 p 119), and the hope expressed originally by the NHS's Chief Medical Officer (DoH, 2000), that better information about adverse events from the establishment of a national reporting system[6] would enable the development of a 'no blame culture' in which mistakes are openly revealed and discussed has not yet been realised[7].

[6] In the UK, the National Patient Safety Agency (NPSA) was set up in 2001 and the national database for adverse events, the National Reporting and Learning System (NRLS) was established in 2004

[7] As Nieva and Sorra (2003) argue, adverse event reporting is unlikely to succeed if punitive consequences attend acknowledgement of error and the latest in a long line of government initiatives to promote openness was announced only recently (Dyer, 2017)

Implicit in "*primum non nocere*" is the idea that harm can be preventable, that the potential for the occurrence of adverse events is "identifiable and modifiable" (Nabhan et al, 2012 p 8). However, despite action on the issue at national level, the latest available statistics show increasing numbers of incidents being reported[8]. Furthermore largescale systemic failures continue to emerge, the most recent, revealed in May 2018, concerning large numbers of preventable deaths at Gosport Hospital (Jones, 2018). All have spawned multiple investigations with their associated reports and recommendations, but have been criticised for being largely ineffective (Black and Mays, 2015), and the following quotations, separated by a decade, suggest that 'patient safety', as the issue has come to be known, remains an aspiration rather than an accomplishment.

> *Continuously improving patient safety should be at the top of the healthcare agenda for the 21st century. ... safety must be paramount for the NHS. Public trust in the NHS is conditional on our ability to keep patients safe when they are in our care. ... The first dimension of quality must be that we do no harm to patients."* (The Darzi Report DoH, June 2008 p 44 and 47)

> *"Every person working in NHS-funded care has a duty to identify and help reduce the risks to the safety of patients ...Even though hazards in care cannot be eliminated, harm to patients can be and should be reduced continually and everywhere. All members of staff have a personal responsibility for patient safety and individuals' needs."* (DoH, 2015 p 136)

> *"Quality improvement and particularly the improvement of patient safety become ever more important when pressure in the system increases as the NHS responds to growing demand ... our ambition is to make the NHS the world's safest healthcare system."* (Monitor, 2018 ps 13, 16)

1.2 The concept of harm in healthcare, some fundamental issues

The prevention of harm is only one dimension of broader quality concerns (Vincent, 2010) and, as the previous quotations suggest, safety has rapidly become part of a quality agenda which has been gaining momentum since the early 1960s (Donabedian, 1968, 2003; Maxwell, 1984). However, the widespread haste to set up systems to deal

[8] more than 700,000 in English acute hospital NHS trusts between April and September 2017, though more than 75% of incidents recorded in hospitals describe a risk to patient safety which did not cause actual harm and it is also argued that the high figures may be attributed to improved reporting (NHS Improvement, 2018)

with patient safety may have partially obscured some of the fundamental issues raised by "do no harm".

One such issue is raised by Jackson et al (2016), who question whether the definition of harm as preventable means that harm which is (at least apparently) unpreventable or unmodifiable may be ignored. They suggest the possibility that the international safety agenda, with its drive for safety cultures and 'harm-free care', risks further solidifying a tolerance of certain types of harm which may not be considered inescapable by everyone. Patients in particular may perceive and assess risk and safety differently from clinicians and politicians (e.g. Vincent and Coulter, 2002, Rhodes et al, 2006). Vincent (2010) also introduces the patients' perspective when he asks (p32) whether patient safety means reducing harm or reducing error; pointing out that patients, while they may be able to accept and tolerate mistakes made by well-meaning health professionals, mind greatly about being actually harmed by the care they receive.

Furthermore, healthcare is not just about omission but also commission. Merely avoiding harm does not deal with the need for positive intervention which confers benefit (Johnstone, 2015), the object being to "*improve health, cure disease, and alleviate suffering*" (Smith, 2005 p 375). Arguing that "*primum non nocere*" should be more accurately interpreted as "*first do no **net*** (my emphasis) *harm*" or "*above all, do not harm more than succour*", Sokol (2013) makes the similar point that choice in clinical practice involves balancing the risks and benefits of particular treatments. This is further complicated by differences in perception of what constitutes harm, not just amongst clinicians but also, crucially, their patients. Hunink et al (2001 p 1) agree and also include issues of values and cost in their list of difficulties in making healthcare decisions, a process which they see as having become increasingly complex with advances in knowledge about disease and its causes, and with the development of organisational systems to facilitate delivery and regulate the conduct of healthcare (Hunink et al, ibid).

Bennett (1996) argued that healthcare issues belong to a subset of risky choices and circumstances posing risks which may be considered "*acceptable*" (Fischhoff et al,

1981) or "*tolerable*" (Layfield, 1987), and are distinguished from other decision problems by the inclusion of a threat to life or health among their consequences. Clinical decisions about patient care, managerial decisions about policy and service development, and policy and resourcing decisions made by politicians may all fall into this category (Bennett, ibid).

The quotation below, from Tuckett (1976), sets out very clearly the problems posed to health professionals[9] by having to choose between different options. The decisions they face in their working environment are not just about avoidance of harm or delivery of care to an individual patient, but encompass a whole range of issues, any or all of which may need to be considered.

> *"the doctor's role is one of immense conflict and difficulty. He [sic] is continuously having to arbitrate between a single patient's interests and those of all his patients, between one patient and another, between a patient's interests now and in the future, between patient and family, between patient and society or community, between the patient's interests and his own interests, between his own interests as a doctor and his interests in other roles."* (Tuckett, 1976 p 220)

Tuckett (ibid) is describing the complicated set of decisions confronting a single individual health professional in determining a course of action[10], but the healthcare system involves many different individuals making choices, at different levels of the system and influenced by many different personal, social and cultural factors[11]. Thus an individual decision about a particular issue may be affected by, and difficult to disentangle from, a host of others (Rasmussen, 1997). In addition, both 'harm' and 'safety' are relative terms. This leaves making judgements about what is or is not harmful or safe particularly open to change as a result of receiving new information, or being swayed by group or cultural norms (Deutsch and Gerard, 1995; Postmes et al , 2001).

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9 Tuckett's paper refers to doctors, but his remarks are applicable to all staff working in the healthcare sector

10 See also Eisenberg, 1979

11 See Breakwell's framework for social psychological analysis (Breakwell, 1994, 2007, 2014)

However, while Tuckett (1976) identifies a wide range of dilemmas, he makes no comment about how, and using what criteria such dilemmas of choice might be resolved. Returning again to "*primum non nocere*", which Darzi (DoH, 2008 p44) refers to as "*one of the defining principles of the clinical professions*", it is not just the implication that harm to patients may be prevented by human agency which is significant, it is the adjuration that this should be of primary importance - "*first do no harm*". The nursing code of professional practice makes just this point, that the avoidance of harm to patients should be the first priority for staff, taking precedence over other considerations:

> *"Prioritise people: You put the interests of people using or needing nursing or midwifery services first. You make their care and safety your main concern "* (*Nursing and Midwifery Council, 2015 p 5)*

1.3 Examining the process of prioritisation

Bearing in mind, then, that the problem of how to avoid harming patients is currently far from solved (Buist and Middleton, 2003; Wachter, 2008; Francis, 2013, 2015; Walshe, 2018; McCartney, 2018); and if, as has been argued, decision dilemmas are inextricably associated with the safe delivery of healthcare, the question arises of how those decisions are made. It is with this issue that the research reported in this thesis is concerned.

All decisions involve risk, if only the possibility that they may prove to be wrong (Breakwell, 2014 p 85), but the interest in decision-making around patient safety is more to do with what prompts the decision-making process in the first place. What are the threats of harm that healthcare staff perceive in their working environment; to what extent do these threats relate to patients and their safety or to other preoccupations and interests; how is the degree of risk they pose perceived and assessed; and what determines selection of priority and behavioural response?

However, deriving convincing explanations of how people respond to real threats[12], is not a simple task. Sjoberg, (1998 p 128) criticises the "*general trend in the social and behavioural sciences*" for conclusions from studies to be based on statistically significant effects which are small and may be difficult to demonstrate in practical terms. Indeed, one of the three targets identified by Renn (1998) for risk perception studies in the 21st century was;

> *"to improve our knowledge of the links between risk perception, attitudes towards risk objects, and actual behaviour"* (Renn, 1998 p 61)

Towards this end, Boholm (1998) has suggested that more powerful statements about risk perception may be derived from intensive qualitative case studies, these allow the collection of data which are as close as possible to happenings in real world settings (Yin, 2015). The qualitative research study reported in this thesis took place in an NHS acute hospital trust where exceptionally good access had been achieved, allowing intensive observation, unrestricted access to potential staff participants, and interrogation of the hospital database on adverse events[13]. It is argued that these provided almost ideal conditions in which to conduct a study of risk perception and decision-making in healthcare, bearing in mind Rasmussen's (1997) assertion that study of such processes requires simultaneous study of the social context and value system in which they occur.

The aims of the study were, first, to establish the context in which decision-making was taking place by identifying at least some of the multiplicity of threats evident to participating staff (mostly nurses) in the hospital environment, and to explore their observed and reported responses to these threats in terms of the risks they perceived and the decisions they made. It was not anticipated that this aspect of the research would make new discoveries of qualitatively different threats from those previously identified and reported on, the nursing literature in particular is a mine of information

[12] Accepting Rosa's argument that "*dangers do exist 'out there'*" and do not simply result from being perceived (Rosa, 1998 p 33)
[13] For further details see Chapter 3

on the sorts of issues that might be relevant[14], but documenting those which were significant for participants was an essential part of understanding their behaviour.

The second aim was to examine the findings and draw some speculative conclusions about the possible impact of the perception of multiple threats on patient safety, improvement of which is a key objective for the NHS (NHS England, 2017). This aim addresses a key point made by Zinn (2009, p 519) that "*it is not decision-making as such that is of interest for the sociology of risk and uncertainty but its link to possible outcomes*". In similar vein Löfstedt (1998, p 1), making the case for launching a new journal in the burgeoning field of risk research in the late 1990's, emphasised the importance of moving risk research forward on not only theoretical but practical levels. In a very much more limited way, this thesis also hopes to make a contribution to theory and practice.

The theoretical approach taken in the thesis comes from the twin fields of risk perception and decision-making. These have, over the years, generated a large quantity of data which can help in understanding people's behaviour in response to perceived hazards in their environment (for a comprehensive review see Breakwell, 2007, 2014). The research to date amply demonstrates that people both perceive multiple hazards and respond to them in different ways. However, there appears to have been less focus on the process by which people simultaneously perceive and prioritise the multiple hazards, or threats (to use the preferred terminology of this thesis[15]) they experience in their daily lives. Crucially, the circumstances under which one perceived threat may take precedence over another which is qualitatively different, when it is necessary to make choices, is rarely addressed despite long awareness of the importance of the issue (Fischhoff et al,1979; Bennett, 1996; Bostrom and Löfstedt, 2003; Smallman, 2004).

[14] See, for instance, a recent (2013, 20 2) special issue of the International Journal of Nursing Studies, which contains 16 papers amongst which can be found reference to nearly all the threats identified by participants in this research

[15] See Footnote 17

Part of the problem has been that what people say (and indeed believe) they would do in response to perceived threats is not necessarily how they will actually respond when they have to make decisions about simultaneously presented choices involving risk (Löfstedt and Frewer, 1998 p3-27; af Wåhlberg, 2001; Taylor-Gooby and Zinn, 2006). This means that reliable data on the processes involved can only be collected if it is possible to examine naturally occurring risk responses to identifiable threats. In order to understand the reported and observed behaviour of healthcare staff and how it relates to and affects patient safety, this thesis uses a particular approach to data analysis, which it is believed has not been previously utilised. Instead of, as is usual, conceptualising behaviour as incentivised or motivated by a preferred outcome (that of harm reduction or avoidance), it takes a perspective which sees behaviour as resulting from a process which seeks, not the most desirable course of action, but the *least undesirable*. The basic premise of this approach is that behaviour in response to perceived risk originates from multiple and often qualitatively different threats in the environment. A prioritisation process then leads to decision-making and action on the most salient (imminent/important/dreaded) of those threats. Analysis of people's behavioural responses thus concentrates on determining the multiple threats perceived, how the degree of risk that each threat poses is determined, what options for action are rejected and what potential outcomes are being avoided. Put more simply, in order to identify the multiple threats perceived, data analysis is concentrated on what people *didn't* do and why.

Two propositions were formulated. The first stated that: *a) individuals identify multiple, qualitatively different threats in their environments and b) prioritise the most salient for a behavioural response*", and the second that: *a) different threats may be more or less salient at any particular time, but that b) salience may vary if circumstances change, altering individuals' responses*".

The four objectives formulated to address these propositions were:

1. to identify and classify the threats ward-based staff perceived in their working environment (Proposition 1)
2. to explore the processes by which staff assessed risk and selected a specific, most salient, threat (Proposition 1)

3. to show how their behaviour was modified by these processes (Proposition 2)
4. to explore ways in which changing perceptions of risk may further affect behavioural responses (Proposition 2)

In summary, this qualitative case study seeks to add to the body of evidence about the aetiology of adverse events by exploring how healthcare staff in a single NHS hospital trust perceive and prioritise threats in their working lives and to examine the possible impact of their responses on patient safety. In so doing, it is hoped to increase theoretical understanding of links between multiple risk perception, decision-making and behaviour.

1.4 Some underlying assumptions

Before considering the research in detail, it is appropriate to rehearse some underlying assumptions about how individuals perceive and process aspects of their environment which have underpinned the collection and analysis of the research material.

First, as explained in more detail in Chapter 2, this research is premised on the assumption that, at any one time, people can and do perceive multiple hazards or threats in the environment which may pose risks to themselves and/or others (Wilson, 1979). However this thesis makes a conceptual and semantic distinction between hazards in general and 'threats'; those hazards perceived to present a more immediate and relevant risk of harm[16]. The findings described here all relate to threats perceived in the 'here and now' by participant staff in their working environment.

A second point is that threats are context specific, relating to what has been called a "*single hazard domain*" (Kraus and Slovic, 1988; Slovic, 2000 p 228). Exploring people's identification of threats and perception of risks in a single hazard domain has the advantage of focusing attention on what is relevant to them in a given scenario and may thus provide valuable insights (Kraus and Slovic, ibid). In this account the threats

[16] Perhaps evoking feelings more akin to 'fear' (Sjoberg, 1992, 2000) or 'worry' (Sjoberg, 1998)

all pertained to the specific setting of an NHS acute hospital; in another domain, at home or in a supermarket, an individual might identify quite different threats.

Third, it is important to be aware what is implied when something is termed a hazard or, as here, a threat. While a threat is conceived as a real entity, existing outside the person (Rosa, 1998), it is subject to recognition and interpretation through the individual's own conscious and non-conscious[17] thought processes at "*the intra psychic level*" (Breakwell, 2014 p 12). Thus any threat, whether affecting themselves or others, is necessarily seen through the perceptual lens (Brunswik, 1952) of the individual who identifies it, determines its nature, importance and immediacy and decides how to respond.

Another fundamental assumption is that perception is subject to both cognitive and emotional processes which, while conceptually separate, exist together and affect each other. The idea that there are two systems of thought which use two distinct forms of reasoning is posited in the very earliest writings of philosophers and psychologists (Evans 2003, 2017) and such dual process theories are supported by most current scholars in those disciplines (for a review see Evans and Stanovich 2013).

The co-existence and conjunction of cognitive and emotional processes was expressed very succinctly by Zajonc in his seminal 1980 paper;

> *"affect and cognition are under the control of separate and partially independent systems that can influence each other in a variety of ways"*
> (Zajonc 1980 p 151)

and these processes were explicitly linked by Greenwald and Banaji (1995)[18] in their theoretical analysis connecting social psychology's key cognitive constructs of

[17] There is continuing controversy in the literature about the contribution workings of the mind of which people are less aware may make to decision-making and behaviour. It is inappropriate to go into great detail here, but it should be noted that the great majority of scholars now accept that "*unconscious processes underlie the way we deliberate and plan our lives*" (Bargh, 2014 p.32) and that it is important for understanding behaviour to focus on both consciousness and processes occurring without conscious awareness (Kouider and Faivre, 2017).

[18] See also Greenwald *et al* (2000)

stereotype and self-concept, to its central affective constructs, attitude and self-esteem.

The view from the philosophical standpoint is very similar. Chalmers (1996), for instance, although distinguishing between phenomenal and psychological concepts of the mind, makes clear that these concepts cannot be seen as entirely separate:

> *"experience does not occur in a vacuum. It is always tied to cognitive processing, and it is likely that in some sense it arises from that processing. Whenever one has a sensation, for instance, there is some information-processing going on: a corresponding perception, if you like. ... it seems to be an empirical fact that they go together."* (Chalmers 1996 p 20)

Using still different terminology Slovic *et al* (2004, p xxxi) identify an 'analytic system' (cognition) and contrast it with an 'experiential system' (emotion). Like Zajonc and Chalmers, they also see the two systems as interdependent; operating in parallel and each depending on the other for guidance. They describe the analytic system as using rules and logic; whereas the emotions involved in the experiential system include affect, feelings of 'goodness' or 'badness' attached to people's perception of entities through experience, and also more immediate feelings experienced by the individual (e.g. fear or anger) arising from the circumstances obtaining at the time (Slovic et al, ibid). Other theorists (see for instance Alpert and Rosen, 1990; Ekkekakis, 2013; Frijda, 2009, 2017) distinguish also between the immediate feeling in response to a stimulus and 'mood', a longer lasting feeling affecting the way an individual perceives the world in general and for which the original stimulus may be less easy to identify.

Another fundamental assumption in this thesis is that at any specific time an individual may or may not be consciously aware of either cognitions or feelings[19]. This assumption is rather more controversial, in that many theorists appear to automatically equate cognitions with consciousness and emotions with non-consciousness. Slovic et al (2004), for instance, describe the analytic (cognitive) system

[19] But note that, in agreement with Newell and Shanks (2014) who concluded that "*many studies have revealed reliable access by participants into the thoughts underlying their judgments*", the empirical data from this research suggest that it may be possible for an individual to identify previous non-conscious processes during subsequent conscious reflection

as requiring conscious control, seeming to suggest that the two systems are characterised by a person's ability or otherwise to be explicitly aware of the choices they are making.

Evans and Stanovich (2013) are critical of this and other dichotomous labels which, they say, tempt readers to think that:

> *"one kind of thought process must be conscious, controlled, reflective, and rule-based, whereas another is non-conscious, automatic, impulsive, and associative."* (Evans and Stanovich, 2013, p 227)

Instead, while acknowledging the existence of two systems of thinking, they follow Kahneman (2011) in concluding that much behaviour, whether affected by cognition or emotion or both, is controlled by non-conscious (System 1) processes "*running in the background*" and argue that conscious (System 2) processes will only occur when "*difficulty, novelty, and motivation combine to command the resources of working memory*" (Evans and Stanovich, ibid). Other theorists, while also recognising that cognitions can be non-conscious, differentiate between different levels of consciousness (e.g. Schooler (2002) and Morin (2006)).

If cognitions can be non-conscious as well as conscious, the opposite idea, that emotions can be both conscious and non-conscious seems less contentious. Theories abound about whether or not emotions result from cognitive appraisal (Moors et al 2013) or are wholly experiential; how emotions are to be conceptualised (Frijda, 2017); and the extent to which different physical or mental mechanisms are involved (LeDoux, 1988; Russell, 2003). However, these do not contradict the basic observable premise that people are often able to consciously identify feelings of anger or fear; while the emotional processes associated with affect (Tomkins, 1962), what Slovic et al (2004 p 312) call "*the whisper of emotion*", and Epstein (1994, p 716) describes as "*subtle feelings of which people are often unaware*", may, as these descriptions suggest, frequently occupy the non-conscious end of the awareness spectrum.

These internal processes are crucial to risk perception and decision-making. Kahneman and Frederic (2007) describe how the speedier System 1 (intuitive)

processes, both cognitive and emotional, propose answers to judgement problems while System 2 (reflective) thinking "*monitors the quality of these proposals, which it may endorse, correct, or override*" (Kahneman and Frederic, ibid p 51). They also note that complex operations initially requiring conscious decision-making may, eventually, come to require less deliberate monitoring and become more automatic. The two systems are thus interdependent, having overlapping domains modified by an individual's knowledge, skills and experience, operating interactively (Sloman, 2007), and being affected by emotional inputs such as an individual's overall mood or specific feelings (Schwarz, 2007; Frijda, 2009, 2017).

To summarise this point, risk perception, judgement and decision-making are conceptualised here as driven by stimuli occurring in the specific domain in which a person is operating at the time, and as relying on mental processes of which individuals may or may not be consciously aware. These processes are driven by cognitive (reasoning) and emotional stimuli, either or both of which may influence the outcome.

A final theoretical assumption is that each individual has, whether or not they are able to consciously articulate it, an overall view of themselves as a person. This is composed of the thoughts and feelings they hold about themselves and the way they behave, and also their perceptions of the ways in which they are perceived by others. Various appellations are given to conceptualisations of this idea, many of which are used interchangeably (Hattie, 2014). The preferred umbrella term used in this thesis to cover all the different ideas that people have about themselves as discrete entities is 'self-concept'[20], seen as very similar to the twin concepts of personal and social identity (a dichotomy which both Stets and Burke (2000) and Breakwell (2001, p 277) argue is unnecessary). The notion of self-concept is crucial to the argument developed in the thesis as its modification in response to different perceptions of risk underpins part of the explanation of how people adapt to threats in their environment.

[20] Epstein (1973) put forward a persuasive argument for use of the term 'self-theory' as an umbrella term instead of 'self-concept', but that did not seem to find general favour

1.5 The structure of the thesis

The following chapters in this thesis are organised as follows:

Chapter 2, the literature review, is in three main sections. The first defines the terms used and explores the historical development of ideas about risk perception and decision-making in uncertainty. The second section considers the role played by risk perception in the aetiology of adverse events. Finally the chapter looks at the literatures (including risk management) which may be grouped under the label of 'safety science' as well as those concerned with risk regulation and governance.

Chapter 3 considers the development of the concept of 'patient safety' from its earliest beginnings; through the widespread recognition in the late 1990s that large numbers of patients were being harmed by the healthcare that was supposed to make them well and the systematised response that was supposed to solve the problem; to the present day, when the initial enthusiasm and euphoria has changed to recognition that preventing harm is more complex and less easily attainable than had been imagined.

Chapter 4 sets out the methods used to carry out the research and to collect and analyse the data. It presents the rationale for the single case study design based on investigating healthcare staff in an NHS acute hospital. It then discusses issues concerning ethics, participant observation at the research sites and selection of staff for interview, and finishes by explaining the approach to data analysis.

Chapters 5, 6 and 7 present the empirical findings from the study. Chapter 5 details the multiple threats to themselves and others perceived by staff in their working environment; Chapter 6 explores how they assess and prioritise the risks they pose and select the most salient for a response; and Chapter 7 looks at influences which may alter their perceptions of risk and cause them to change their behaviour.

Chapter 8, the final chapter, presents a critical analysis, along with a two-stage model developed to illustrate the decision-making process apparent from the data. The chapter concludes by speculating about the possible importance and generalisability of some of the of the findings.

Chapter 2 General Literature Review

The purpose of this chapter is to investigate topics generally relevant to the subject of this thesis, the contribution of perceived multiple threats in the working environment of NHS ward-based staff to decision-making and behaviour in relation to patient safety. It explores a variety of different literatures initially considered[21] to have potential to shed some light on how and why people, both individually and collectively, recognise hazards, perceive risk, and behave in response. There is, in addition, a vast literature exploring the specific concept of patient safety. This is not addressed here, but is explored in Chapter 3 of this thesis.

The review is divided into three main sections followed by a brief conclusion. After explaining the ways in which the terms 'risk' and 'hazard' are defined and used, the first and longest section then explores some of the literatures on risk perception and decision-making in uncertainty which underpin ideas about how people identify, rate, and react both cognitively and emotionally to threats in their environments. It is suggested that although much is now understood about the way individuals perceive a single focal hazard, less is known about how people react to and prioritise the multiple, qualitatively different hazards in their environment that compete for their attention.

The second section of the review moves from a focus on the individual response to perceived risk to considering the role played by risk perception in the aetiology of happenings which cause harm – 'adverse events' - in general. It begins by looking at some of the streams of work building on the research of two major influences in the field, Enrico Quarantelli (1924-2017) and Barry Turner (1937-1995) concerning the human elements involved in the organisational and inter-organisational development of disasters. It then goes on to consider what is known about various organisational, group and individual influences on events which, though not classified as disasters in

[21] Consideration of the findings of this research suggested other literatures which might usefully have been explored in this review, in particular those relating to the effects of occupational stress. These further literatures are briefly discussed in Chapter 8.

terms of scale, are nevertheless considered to be '*disastrous*' in the sense that they involve or risk causing serious harm to individuals.

The final section explores aspects of the extensive literature (including risk management) which may be grouped under the label of 'safety science', and of that focusing on the organisational response to dealing with identified hazards, i.e. risk regulation and governance. It was anticipated that this would have particular relevance to Phase 2 of the research which involved investigating the circumstances in which hospital staff identified and responded to potential threats to patient safety through recording adverse events on the hospital database.

2.1 Risk perception and decision-making in uncertainty

2.1.1 Defining risk and hazard

The concept of risk

Risk may be expressed in mathematical terms of chance and probability, the statistical likelihood that a particular outcome will occur. Here the idea of risk is value free; for instance, it would be correct to say that there is a high risk of *not* being run over when the road is empty of traffic. The use of the word “risk” seems awkward in this context because, as cultural theorists and others have argued, the concept of risk has come to be associated with danger and loss (Baird and Thomas, 1985; Levitt and March, 1988; Douglas, 1990, 1994; Joffe, 2003; Tulloch, 2008). There is thus a mismatch between decision theoretic conceptions of risk, where value free choices are based on statistical probabilities, and the perception of those making risky choices, for whom the concept of risk is inextricably associated with negatively valued outcomes of choice. As March and Shapira (1987) note, there is:

> *"a persistent tension between “risk” as a measure (e.g. the variance) of the distribution of possible outcomes from a choice, and "risk" as a danger or hazard. From the former perspective, a risky choice is one with a wide range of possible outcomes. From the latter perspective, a risky choice is one that contains a threat of a very poor outcome.”* March and Shapira (1987, p 81)

Social theorists such as Beck (1992) and Giddens (1991) have argued that this concept of risk as a threat has become fundamental to the way in which people organize their

world, indeed, Renn (1998) bemoans this attitude, suggesting that a preoccupation with risks and the perceived need to reduce them has led to an increasing public dissatisfaction with the organisational response in terms of risk management. Clearly, the term 'risk' is not being used here as a value free mathematical concept, but as something which has negative connotations. It is in this way that the term is used in this thesis.[22]

The next problem that arises in defining risk is that in common parlance and, as suggested by March and Shapira (1987) in the quotation above, the terms 'risk' and 'hazard' are often used interchangeably, thus obscuring recognition of the processes by which people interpret hazards as risks (Wilkinson, 2001; Breakwell, 2007; Scheer et al, 2014). This presents a problem for a thesis such as this which seeks to differentiate between something that may potentially pose a danger or threat and the perception and evaluation of that threat by an individual. Joffe (2003) deals with this problem in her paper exploring the ways in which people make meaning of the risks they face, by conceptualising risks/hazards, and the responses to them, as separate entities. A similar separation between the two concepts is noted by Eiser et al (2012 p7), who point out that "'*perception' usually implies that there is something 'out there' to be perceived*". They make a strong case for the substitution of the term 'risk interpretation' for the more usual 'risk perception', specifically to prevent arguments about the perceived nature of the hazards themselves diverting attention from examination of the processes by which people anticipate the outcomes of choices that they or others make[23].

The semantic strategy used in this thesis in order to differentiate between these two meanings of risk is to use the term 'risk' only in the second sense, i.e. as the valuation of the potential for harm posed by something perceived as hazardous, and to refer to the entity generating this process as a 'hazard' or 'threat'.

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[22] The definition of risk set out in this paragraph and some other elements of this literature review were first published in Bennett (1996).

[23] While the force of Eiser et al's (2012) argument is recognised, the more usual nomenclature of 'perception' is used in this thesis

It is argued that this usage makes clear the difference between 'risk' as a potentially dangerous entity and 'risk' as the evaluation of the degree of danger posed by that entity.

The concept of 'hazard'

Everyone is presented, all the time, with not one but many different hazards, responses to all of which must somehow be accommodated in behaviour. Some hazards may be perceived as imminent, offering a major threat to life or wellbeing and demanding immediate action, others may be seen as less threatening, enabling them to be temporarily, if not indefinitely, disregarded. For instance, Ulrich Beck (1986, 1992), in defining his "Risk Society", suggested that everyone is to some extent threatened by potential disaster on a global scale, mostly as a consequence of increasingly complex interventions in natural processes. Even though concerted action might reduce the threat, the effect of one individual's behaviour is small, may not be visible during an individual's life time, and may thus be relatively easy to ignore. However, as Beck (ibid) also points out, each person has in addition to deal with a set of potential hazards which are more immediately salient to them and which may be more amenable to personal influence:

> *"everyone is engaged in the struggle for ... [their own] job, income, family, little house, automobile, hobbies, vacation wishes, etc. If those are lost, then you are in a tight spot in any case – pollution or no."* (Beck, 1992)

An essential tenet of this research is that, at any one time, people can and do perceive multiple hazards or threats in the environment which may be assessed as posing risks to themselves and/or others (Wilson, 1979). However, as Beck (1986, 1992) suggests in the quotation above, some hazards may seem rather remote. For most people, most of the time, chemical pollution or a nuclear accident, though having catastrophic potential and rated as having a high 'dread' factor (Slovic et al, 1980; Slovic 2000, 2006, 2016a,b) are probably not of immediate concern. People have more pedestrian worries (Beck, ibid). This thesis thus makes a conceptual and semantic distinction between hazards in general and 'threats'; those hazards perceived to present a more

immediate and relevant risk of harm[24] in the circumstances obtaining in the present. Hazards perceived to have low probability of occurrence may not be seen as a problem (Fischer et al*,* 1991; Slovic, 1999); so, for this thesis, while all threats are hazards, not all hazards are assessed as threats.

Few would contest the universality of the experience of multiple hazard perception. However, despite being addressed from many different perspectives, the twin problems of how risk messages from numerous hazards are produced and interpreted in real life, and how to predict behavioural outcomes when people have to make decisions about simultaneously presented choices involving risk have been under investigation for more than a century and remain unresolved.

In addition to the predominant focus on single hazards, a further problem relates to what people may do in response. Löfstedt and Frewer (1998, p 5), while acknowledging that research on risk within the psychometric paradigm[25] produces reliable results in relation to how people *say* they will behave in response to various hazards, point out that these results cannot reliably be shown to predict what people will actually *do* when a behavioural response is required. Indeed, af Wåhlberg (2001), in an important critique of the field, pointed out that none of the main approaches to risk perception studied behaviour in real situations, only the stated intention to behave. Breakwell (2007, p 269) stated that since most research shows that intentions are not linked to behaviour in any simple way there is "*a very real need*" for studies that follow the decision-making process from risk estimation to risk taking, while Löfstedt and Boholm (2009) also called for further research in this area, saying that:

> *"More knowledge is needed of how risk messages are produced and interpreted in real life and of how understandings are influenced by communication context, assumptions, knowledge, social roles and expectations and, not least, social and interpersonal trust"* Löfstedt and Boholm (2009, p 14)

[24] Perhaps evoking feelings more akin to 'fear' (Sjoberg, 1992, 2000) or 'worry' (Sjoberg, 1998)
[25] The psychometric approach (Slovic, 2000 p xxii) is described later in this review

2.1.2 The development of risk research

This section looks at the streams of social science literature which have made the most fundamental contributions to current thinking and knowledge about how people perceive hazards, assess risk and behave in response. It begins with the earliest thinking about how individuals make choices when the outcome is not certain, considering the contributions of economics and behavioural psychologists to understanding the cognitive aspects of decision-making.

The section goes on to consider the influential psychometric approach, developed by Slovic, Fischoff and Lichtenstein in the early 1970s. This, though still mostly laboratory based research, expanded the field from asking research participants to consider only relatively trivial choices between options of little real importance to them, to investigating how people might respond when faced with real hazards and threats existing in their environments.

Next, an important feature of these more wide-ranging depictions of potential influences on people's behaviour, the inclusion of emotional as well as cognitive reactions to aspects of the environment is discussed. The possible effects of emotion on behaviour are particularly apposite in relation to risk perception, given that risk is most frequently associated with possible loss, and the role played by emotion, or affect, in configuring people's responses to perceived risk has formed a significant stream of work within risk studies since the early 1990s.

Cognition and emotion are of course internal to the individual, but as the streams of research in both areas clearly indicate, the different ways in which people perceive and respond to risk are not just a reflection of individual differences but of the wider contexts within which they operate. In pursuit of possible links between risk perception, decision-making and behaviour, the narrative then moves on to consider some theoretical approaches to deriving a more global understanding of how people perceive and assess their environment; cultural theory, the mental models approach, social representation theory and the social amplification/attenuation of risk framework (SARF).

The section concludes by considering to what extent these varied literatures on the effects of personal and contextual influences on people's responses to perceived risk shed light on how people may make decisions about what to do when faced simultaneously with not one, but a number of qualitatively different hazards or threats. It is suggested that this area of research is underdeveloped, given that it is rare in normal circumstances to be aware of only one possible choice of action, and that a process of prioritisation and selection must therefore intervene between recognition of risk and subsequent behaviour.

Early cognitive theories of decision-making

Long before social scientists started to take an interest in decision-making and risk, economic theorists, beginning with Jeremy Bentham (1738-1832), were taking an interest in how to predict the choices people make when faced with alternative outcomes. They started from a basic premise that sensible, 'rational' people, who know and fully understand their (economic) options will always maximise utility, i.e. choose the outcome which will benefit them most. This has been termed the 'theory of riskless choice' (Edwards, 1954). However, it rapidly became clear that all but the most simple decisions were likely to involve making judgements about the relative worth of the options involved. There was thus a chance (or risk) of making the wrong choice and failing to maximise utility. Hence the birth of the Subjective Expected Utility (SEU) model (Savage, 1957), which, in part because it is capable of mathematical expression and calculation, still forms the basis of quantitative risk assessment (QRA) and actuarial predictions.

At around the same time Savage was promoting the SEU, Herbert Simon, approaching the area from a background in analysing administrative and business decisions, wrote two highly influential papers which drew evidence from both psychological and economic literatures (Simon, 1955, 1956). In what Gilovitch and Griffin (2002, p 2) call "*the most significant theoretical development*" coming from early contributions to this field of research, Simon concluded that "*the concept of "economic man" ... is in need of fairly drastic revision*", commenting that:

> *"the models of adaptive behavior employed in psychology (e.g., learning theories), and of the models of rational behavior employed in economics, shows that in almost all respects the latter postulate a much greater complexity in the choice mechanisms, and a much larger capacity in the organism for obtaining information and performing computations, than do the former. Moreover … the learning theories appear to account for the observed behavior rather better than do the theories of rational behavior."* (Simon, 1956, p 129)

Simon showed that, far from following the 'rational' strategy of examining all the possibilities and probabilities before making a decision in order to maximise utility, people (and, for Simon, organisations) faced with any but the simplest of choices will frequently simplify their search to make the task manageable. Hence they will only consider enough options to satisfy a target goal ('satisficing'), rather than continuing their search to find the best (least risky) outcome ('optimising'). It is important to note here that neither Simon, nor the many other researchers who have built on his work, viewed such behaviour as non-rational. To reduce the search task to manageable proportions was seen as an entirely sensible and indeed rational response to real-world exigencies. Simon dubbed this 'bounded rationality'.

By the mid 1900s, psychologists were also starting to work in the area of decision-making and risk. One of these was Ward Edwards, who in 1954 and 1961 published two seminal articles (Edwards, 1954, 1961) that created behavioural decision research as a new field in psychology (Phillips and von Winterfeldt, 2006). Aware that the available economic literature was "*unfamiliar and relatively inaccessible*", Edwards (1954) noted that the economists' initial assumption, that people will always select in a rational manner, following elementary rules of probability, had already been challenged by experimental evidence which showed this did not always seem to be the case[26]. He went on to conduct his own experiments in this area, utilising Bayesian statistics to develop a normative standard, based on a definition of probability as a particular measure of the opinions of ideally consistent people (Edwards et al*,* 1963).

[26] for a contemporaneous review of many empirical studies showing the lower predictive success of expert judgement when set against statistical actuarial procedures, see Meehl, 1954

Comparing experimental evidence with this standard showed that intuitive judgements of likelihood rarely if ever matched up to the 'ideal' norm.

Edwards' contribution to the understanding of the cognitive aspects of decision-making under risk was of great value in itself. However, it can be argued that of even more importance was his mentorship of the group of young researchers he gathered around him in the Engineering Psychology Laboratory at the University of Michigan. From those who benefited from the "*stimulating intellectual atmosphere*" (Phillips and von Winterfeldt, 2006) emerged two different, but equally influential, approaches to examining the influence of cognitions about risk on choice of behavioural response, Tversky and Kahneman's work on heuristics and biases and the body of research initiated by Slovic, Fischoff and Lichtenstein which is now known as the Psychometric Paradigm.

Heuristics and biases

In 1974, Amos Tversky and Daniel Kahneman published a paper in Science, based on work they were doing on how the decisions people made were influenced by their beliefs concerning the likelihood of uncertain events. The paper, an early and seminal product of a collaboration which was to last for three decades, demonstrated that people frequently over- or underestimate degrees of risk by using faulty decision strategies, or 'heuristics' (Tversky and Kahneman, 1974). Since that original paper, Kahneman, Tversky and many others have amply demonstrated the existence and persistence of these, on the face of it counter-intuitive, findings in many laboratory and everyday settings, (for wide-ranging reviews of the field see Gilovich et al, 2002 and Kahneman 2011, p 109-195). Breakwell (2007) summarises what is known about the apparent failures of humans when tasked to make rational decisions as follows:

> *"when it comes to rational decision-making ... [humans] ... ignore base rates when estimating probabilities; ... [continue] to invest in failure because they have done so before, are naively optimistic, take undue credit for their achievements and do not recognise self-inflicted failures. In addition, they overestimate the number of others who share their beliefs, demonstrate 'hindsight bias', have limited understanding of chance, perceive illusory relationships between non-contingent events and overestimate their own ability to impose control. ... they are overconfident in their judgements; they*

> *engage in spurious hyperprecision when making predictions; they ignore the limits of the data available to them, and so on."* (Breakwell, 2007 p 79)

However, and most importantly, Tversky and Kahneman (1974) noted that the use of such heuristics should not be seen as due to inattention, laziness or wishful thinking, as the biases which skewed people's responses persisted even when incentives to determine the 'correct' answer were on offer. Nor were heuristics and biases restricted to those not familiar with statistical calculations. Just as suggested by the earlier findings of Meehl (1954), the intuitive judgements of experts faced with complex problems show similar biases to those made by 'lay' participants (Bostrom, 1997; Kahneman and Klein, 2009).

Rather than rejecting entirely the concept of rationality, psychologists started to view the use of heuristics and biases as adaptive, helping the individual faced with difficult or even impossible choices to decide on a course of action either more rapidly or more effectively than they might otherwise have done. Even though such choices might be shown to be flawed, it could be more adaptive to decide and move on than to be for ever hesitating, impaled on the horns of a dilemma. Nevertheless, the hope at that time was that if people could be shown the reasons for their making erroneous choices, by demonstrating and explaining the cognitive processes involved, decision-making could be improved:

> *"These heuristics are highly economical and usually effective, but they lead to systematic and predictable errors. A better understanding of these heuristics and of the biases to which they lead could improve judgments and decisions in situations of uncertainty."* (Tversky and Kahneman, 1974 p 1131)

Since then, as will be explored in the rest of this chapter, further research has shown that judgements about risk are influenced by many more factors than heuristics and biases, and that awareness of these processes, while useful, need not necessarily lead to improved decision-making.

The psychometric paradigm

A key characteristic of decision research up to the 1970's was that, even though results were often extrapolated to real world problems, much of the research itself tended to

be laboratory based and focused on relatively simple choices between clearly delineated and discrete problems, where the behavioural outcomes of choice were observable.

However, prompted by work done by Chauncey Starr on risk/benefit analysis in relation to real life societal issues (Starr, 1969), a new and very influential research approach, the 'psychometric paradigm', was developed by a group of researchers at the University of Oregon (Slovic, 2000 p xxii). Starr's work depended on retrospective analysis of societal decisions assumed to demonstrate patterns of "acceptable" (because accepted) risk/benefit trade-offs. For the Oregon researchers, Fischhoff, Lichtenstein and Slovic, this assumption of acceptability to individuals simply because a particular outcome had emerged was questionable. Thus, in the early 1970's they started to design questionnaire based research which asked people directly about their perceptions of the risks relating to various hazards they might be aware of in everyday life, and their preferences for various kinds of risk/benefit trade-offs (Fischhoff et al, 1978).

Despite methodological criticisms of the psychometric approach[27], the importance of this body of work can hardly be overestimated, moving as it did the focus of risk perception research away from trivial experiments in choice devised in the psychology laboratory, to consideration of the way people view the hazards they may experience in real life settings, using various different techniques to produce quantitative data capable of statistical analysis, Nevertheless, as Slovic himself points out (Slovic, 2000 p xxiii), one of the limitations of the psychometric paradigm is that although the questions assess people's thoughts and feelings about hazards, they do not elicit actual behaviour. Indeed, as Breakwell (2007 p 79) notes, most of the work on decision-making under uncertainty has been focused on gaining a greater understanding of the cognitive processes involved, to identify how and in what way people perceive specific hazards, rather than developing insight into their actions in response.

[27] For instance from Sjöberg (1996), who calculated that it only accounted for about 20% of the variance of perceived risk.

Despite this caveat, research from the Oregon group over the last 30 years has produced a mass of evidence (for overviews see Slovic, 2000, 2010) in support of their 'psychometric paradigm'. Very importantly also, their collective works provide an insight into the way in which risk research feeds both into and from a much wider search for understanding of how people perceive the world. As Berger and Luckmann (1966) make clear in the introduction to their seminal book, *The Social Construction of Reality*, social scientists have long sought theoretical ways of explaining and expressing the effects of perception, and the introductions in Slovic's books, (2000 and 2010) document the ways in which his group's approach to their research changed in the face of emerging new evidence from other sources.

Tversky and Kahneman's work on heuristics and biases, described in the previous section was an early influence. Somewhat later, in the early 1990's, as other research studies began to demonstrate the importance of emotion as well as cognition to how people responded to perceived risk, the group began to recognise the more general importance of a finding in their early studies of perception (Fischoff et al, 1978) that people rated the acceptability of specific hazards in relation to the degree of dread they evoked. Furthermore, other early findings pointed to the possibility that feelings contributed to judgements and decision-making about risk (Alhakami and Slovic 1994). These and other findings from various sources, says Slovic, became the "*scaffolding*" (Slovic, 2010 p xxii) around which a new stream of work demonstrating the important contribution of feelings "*in guiding human behaviour in general and risk perceptions and risk decisions in particular*" (Slovic, ibid).

The role of emotions in risk perception

In the early 1980's Simon had predicted that "*in order to have anything like a complete theory of human rationality, we have to understand what role emotion plays in it*" (Simon, 1983 p 29). This was indeed prescient, as recognition and exploration of the role of emotion and/or affect (feeling) as distinct from cognition (thinking) in risk perception and decision-making and the development of theory relating to it has been identified as one of the ten most important accomplishments in risk analysis during the last 30 years (Greenberg et al, 2012).

An 'affect heuristic' (Alhakami and Slovic, 1994; Finucane et al, 2000), in which people's views are coloured by their positive or negative feelings about aspects of their world, was proposed, which should be considered alongside the cognitive theories of decision-making which had traditionally dominated risk research (Breakwell 2007, Lerner and Keltner, 2000, Loewenstein and Lerner 2003). The rapid expansion into this new area of enquiry soon identified numerous ways in which decision-making, and indeed the entities that trigger the decision-making process, i.e. the perception of risk emanating from identified hazards or threats in response to risk, was influenced, whether consciously or non-consciously[28], by a person's feelings.

Categorising feelings into various types, depending on how they originated, however, proved extremely complicated, not least because there has been little consensus about the exact meanings of the different terminologies used to characterise different sorts of feeling[29]. Ekkekakis (2013) suggests using the umbrella term, 'affective phenomena', but it is preferred here, for simplicity, to follow Slovic et al (2010) and use 'feelings' as a collective term to cover influences which are thought to differ from those related solely to cognitive processes related to a subject or issue and 'affect' as the negative or positive quality of response to those feelings (Slovic et al ibid; Västfjäll et al, 2016).

Initially, much of the research focus was on the role played by feelings related to the threat or decision itself (e.g. Finucaine et al, 2000), but there was also early recognition that decisions about risk could be influenced directly or indirectly by extraneous feelings which were unrelated to consideration of the focal choice (Loewenstein and Lerner, 2003). In addition, a seminal paper by Zajonc (1980) had made an important temporal distinction between feelings experienced in response to thinking about a particular focal entity, which he designated 'post-cognitive affect', and 'pre-cognitive affect', those feelings occurring in advance of conscious thought. These latter might

[28] The term 'non-conscious' is chosen as a generic term to stand for any or all the many different levels of unconsciousness posited by the vast literature on the topic.
[29] For discussions of semantic problems in research into emotions see Batson et al (1992) and Ekkekakis (2013)

relate to unrecognised feelings about the focal entity, or other potential threats in the environment, but might also be modified by an individual's own current state of mind (happy, sad etc.).

The importance for this thesis of the body of work on the effects of emotion on how people perceive risk is that, as a group, hospital staff are expected by the public to have feelings about their patients, "*people want to feel safe in the knowledge that nurses are doing this work because they have the right values, attitude, character and motivation*" (Carter, 2014 p 696). Thus, as emotional as well cognitive responses to staff perceptions of risk in relation to patient safety seem likely to be important, the following sections explore the development of these two streams of research in greater detail.

Post-cognitive affect

In the 1990s two significant contributions to theorising about the role of feelings came from Antonio Damasio, and Seymour Epstein, both American psychologists. Damasio (1994) hypothesised the existence of 'somatic markers' in the brain which increase efficiency by linking learned emotions to people's perceptions of reality. Hence, he argued, a person's thoughts about (for instance) a dog will be modified by previously determined positive or negative emotional reactions to aspects of dogs to which they have been exposed. Epstein (1994 p 710) took these ideas even further in suggesting the existence of an experiential system, "*an automatic, intuitive mode of information processing that operates by different rules from that of a rational mode*". This is similar to Damasio's somatic markers, but more explicitly linked to real-world behavioural responses, which he contrasted with the "*rational system*" of deliberate thought. Epstein's ideas and terminology were used by Slovic et al (2002, 2004) in two important review papers exploring what was known about the role of emotion in decision-making (though in the second, Slovic et al (2004),the term "*rational system*" was replaced with "*analytic system*" to emphasise that "*there are strong elements of rationality in both systems*"). The papers gave strong support to the now widely

accepted[30] proposition amongst decision theorists that the "*affect heuristic*" (Finucane et al, 2000) is an efficient shortcut mechanism when judgements are complex or mental resources limited.

All this ensured that the influence of emotion on choice could no longer be neglected; Nevertheless affect had still tended to be seen by decision theorists as post cognitive, i.e. *deriving from* or at the very least *associated with* assessment of the problem, despite this view having been challenged in Zajonc's influential paper, described earlier (Zajonc, 1980). His paper, which appeared to contradict the received wisdom of the time, argued that the affective response to a stimulus frequently preceded cognitive evaluation, rather than occurring as a consequence of reasoning and making judgements. However, decision researchers were able to incorporate Zajonc's ideas into the notion of the affect heuristic, seeing these early emotional reactions as "*orienting mechanisms*" which speeded up the decision-making process (Slovic et al, 2000). Thus there is now a large body of work which focuses on the influence of affect as either relating to some pre-existing or contemporaneous emotional state which might influence the decision-making process (phobias, for example, are often recognised as illogical by those whose choices are constrained by them); or as some anticipated and worrying future outcome of decision-making (e.g. "If I decide *x*, rather than *y*, will the outcome be the lady or the tiger!" - Stockton, 1882). Loewenstein et al*'s* (2001) influential paper '*Risk as feelings*' puts this case clearly, making explicit the distinction between anticipatory and anticipated emotions.

Pre-cognitive affect

However, while not in any way detracting from this way of conceptualising the role of emotion, there are others who posit that a person's emotional state at the time of making a decision might also affect a person's judgement, even though that state was not connected with the decision to be made. Lerner and Keltner (2000, 2001) in their demonstration of what they called "*the appraisal-tendency*" showed that emotions like fear and anger, incidental to the decision task in hand, affected judgement in different

[30] Though this is challenged by some – see Sjöberg (2006)

ways. It has also been suggested that a euphoric state of mind may predispose people to take risks, even though their judgement tells them that the outcome is likely to be poor. Thus "*venturesomeness*" has been associated with sexual risk taking, alcohol consumption, cigarette smoking and generally risky behaviours (Breakwell 2007 p 51). There has also been considerable interest in so-called "*priming effects*". This refers to the theory that intentions and goals are capable of nonconscious activation by the environmental context (Bargh, 1990). The priming effect is rather similar to that of 'mental models'[31], but differs in that the subtle (or not so subtle) contextual cues which alter affect appear to be unrelated or only distantly related to the focal object. Numerous experiments in this field and the related one of 'subliminal' perception have reported ever more surprising findings and Kahneman (2011 pp 52-58) devotes six pages to "*the marvels*" of priming. The reliability and replicability of some of these results have been questioned (e.g. Yong, 2012, Russell, 2013) as part of what has been called:

> *an "epidemic of false, biased and falsified findings ... (against which)...the scientific community's defences are weak"* (Fanelli, 2013)

Nevertheless Kahneman has re-asserted his belief in the concept in a letter to Nature (Kahneman, 2012) and, though the idea is still questioned by some (see for instance Moore, 1992, Shanks et al, 2013), it received persuasive support from a systematic meta-analysis of fMRI studies (Brooks et al, 2012) which appeared to show actual physical evidence of subliminal or priming effects.

Controversies over methodological rigour notwithstanding, it is hard to dismiss the huge body of evidence which suggests that decision-making is not only influenced by emotions triggered by contemplating and evaluating a situation, but also by feelings and experiences related only tangentially to the situation at hand. These twin roles of affect in decision-making have been termed "*integral affect*", where subjective experiences and feelings of which the decision maker may or may not be aware may directly influence present judgements, and "*incidental affect*" where emotional

[31] To be discussed in the next section

experiences unrelated to the situation at hand may, unbeknownst to the decision maker, nonetheless have direct or indirect impact on the judgements made (for overviews see Wardman, 2006, Renshon and Lerner, 2011, Lerner et al, 2015; Västfjäll et al, 2016).

Significant insights have been gained from these two separate streams of research into the ways in which emotion as well as cognition may influence decision-making. However, as Västfjäll et al (2016) point out in their wide-ranging review of the field, although there has been a paucity of research concerning the combined effects of incidental and integral affect, it is probable that both types affect everyday judgements to a greater or lesser extent, depending on the context. Furthermore, the view that the cognitive elements of risk perception and decision-making may be affected by different types and sources of emotion is supported by research into the neural mechanisms mediating the relation between affect and choice (Phelps et al, 2014) is particularly pertinent to the research question that is being addressed in this thesis. It supports the hypothesis that people may be influenced, not just by the threat or hazard on which they are concentrating at the time, but by multiple hazards or threats in their environment, and brings in the possibility that their emotional reactions to these may affect their judgement and behaviour in response to an identified hazard.

Holistic approaches to understanding response to perceived risk

The development of insights into how people's cognitive and emotional perceptions of risk may affect the decisions taken in response has been a particularly important aspect of risk research. However, "*individual's perceptions of risk cannot be studied as though they occurred in isolation from the social world*." Boholm (1996, p 65), and various theoretical frameworks which take account of both intra- and extra- personal influences have been developed which deliberately seek to understand perception as a response to all aspects of a person's environment. Some of these more holistic approaches have been particularly influential amongst those seeking to explain responses to perceived risk, and have had a considerable effect in structuring how the

scientific community and lay people alike conceptualise what influences perception and behaviour.

Amongst such approaches are cultural theory, the mental models approach, social representations theory, and the social amplification/attenuation of risk framework (SARF), and it is argued that these have particular relevance for this thesis, as a conceptualisation that sees all features of a situation as contributing to perception necessarily implies that people are simultaneously aware of numerous threats and the risks they pose. It also suggests that deciding how to respond to perceived risk does not occur in a vacuum, but is influenced, not only by the characteristics and previous experiences of the person or persons involved, but also by their assessment of the situation in which the choice is to be made.

Cultural theory

Culture is a collective phenomenon which relates to learned patterns of thinking and feeling which shared with others who inhabit the same social environments (Hofstede, 1994). Development of cultural theory in relation to risk research was initially due to Mary Douglas, a social anthropologist, and Aaron Wildavsky (Douglas, 1966, 1982, 1983; Douglas and Wildavsky, 1982; Wildavsky, 1987; Dake, 1991, 1992; Tannenbaum, 1994). This theoretical approach asserts that individuals' perception of risks cannot be isolated from the values and beliefs held by the social world they inhabit, which influence the choices made in response to hazards (Boholm 1996). However, the theory sees risk perception as wholly determined by the cultural biases introduced by the milieu in which they live, which does not satisfactorily account for individual differences in beliefs and value systems (Breakwell, 2014). Indeed Sjoberg (1996) suggests that cultural theory accounts for no more than 5% of the variance of perceived risk, while Boholm (1996) makes numerous criticisms of the theory, which she sees as presupposing that there is a "*one-to-one correspondence between way of life and individual orientation*" (Boholm, ibid p 72).

Nevertheless, cultural theory makes two important contributions in relation to the subject of this thesis. First, as already noted, it argues for a holistic approach which

considers the impact of multiple environmental factors on individual risk perception. In addition, and even more importantly since this particular perspective is not explicitly noted by the other holistic approaches discussed in this section, cultural theory points to the conflictual nature of multiple risk perceptions. Questions about which hazards are most worthy of concern and which risks should be taken and which avoided, seen by cultural theorists as causing controversy at the societal level (Dake, 1991), are, it is argued, just as likely to cause problems for individuals when deciding which threats to prioritise for action.

While the focus of cultural theory is on how societies and social groups bias people's view of the world they inhabit, another holistic theoretical conceptualisation of how people's understanding of their surroundings are acquired is premised on the idea that perceptions are modified by different internal representations of the situation in which the hazard occurs. This theme, developed over many years, is now known generically within risk research as the 'mental models' approach (Breakwell, 2007 p 94), and differs from that of cultural theory in that it takes account of individual differences in cognition and emotional response to hazards and does not see an individual's view of their social world as being the only contributing factor to risk perception.

<u>The mental models approach</u>

The mental models approach, has been given different labels at different times, though in essence all address the same basic idea. Hence Frederic Bartlett, in studying memory at Cambridge during the 1930's, used the term '*schema*' to refer to the body of existing knowledge and understanding which people use when attempting to assimilate something new (Bartlett, 1932). Working at the same time as Bartlett, Edward Tolman, a behavioural psychologist working on how rats learn to navigate mazes, proposed '*cognitive map*' as a mechanism by which previous experiences enabled development of a template which enabled more rapid solution of a present problem (Tolman, 1932, 1938, 1948).

Marvin Minsky's (1974) concept of '*frames*', which he offered as a theory of how the human mind adapts to new experiences, was the next re-working of this idea. Minsky

came from the rapidly developing field of artificial intelligence, but with this insight he drew together the work of a number of other people trying to understand human brain processes:

> *"I see all these as moving away from the traditional attempts both by behavioristic psychologists and by logic-oriented students of Artificial Intelligence in trying to represent knowledge as collections of separate, simple fragments...Here is the essence of the theory: When one encounters a new situation (or makes a substantial change in one's view of the present problem) one selects from memory a structure called a Frame. This is a remembered framework to be adapted to fit reality by changing details as necessary"* (Minsky, 1974 Lab memo 306)

Prospect Theory (Kahneman and Tversky, 1979, Tversky and Kahneman,1981,1986) drew heavily on Minsky's ideas, focusing on the potential for individuals to predict the results of their choices by considering not only their present circumstances, but how they might feel about their decisions in the context of different future scenarios or 'frames'.

Yet another offering which combined elements from psychology and artificial intelligence came from Schank and Abelson (1977) who used the term '*script*' to represent how the brain utilised what was already 'known' by the individual (cognitive maps, schemas or frames) to determine the sort of choices which were appropriate in a given frequently occurring and stereotypical situation, such as eating in a restaurant. This was an idea which caught the popular imagination, so much so that a decade later Schank was to remark ruefully on the subsequent "*loss of control over our own terminology and theories*" (Schank, 1989) with 'script' being used to describe almost any kind of behaviour in any situation.

The use of the term '*mental model*' to describe how people represent topics in their minds as part of the process of constructing explanations originated in a book, "The Nature of Explanation"(Craik, 1943), written by Kenneth Craik, one of the first Cambridge based cognitive psychologists. However, his untimely death prevented elaboration of his ideas and that particular nomenclature was not resurrected until the 1980's, notably by Philip Johnson-Laird at Princeton (1980, 1983). Although Johnson-Laird's view of mental models was a rather restricted one, in that he based it very

firmly in experimental cognitive science, the expression now began to be utilised more widely. For instance, a brief inspection of papers on the subject published between 1980 and 1990 shows over 400 papers using the term. Many of these came from psychologists but there are also papers from more diverse sources such as planners, educators, specialists in child development, and systems analysts; while Gentner and Stevens' (1983, reprinted 2014) book, 'Mental Models' was based on papers given at a conference attended mainly by physicists.

Mental models approaches have become especially influential in the field of risk communication research, leading to the development of tools such as 'influence diagrams', based on attempts to represent an individual's mental model of a particular hazard[32]. Proponents of this approach assert that it offers an effective, though admittedly time-consuming and expensive way, of ensuring people's proper understanding of the risks posed by specific hazards (Morgan et al 2002 ps 14, 183).

However, a focus on how people understand specific risks does encourage a bias towards what Joffe (2003 p 59) calls "methodological individualism". It shows how people may modify response to a particular risk through awareness of the multiple hazards and threats in their environment, but leads away from consideration of how people acquire such perceptions in the first place. In the next sections, two approaches which do specifically focus on examining the processes involved in the acquisition of an individual's view of their world, and thus their understanding of the hazards and threats which may inhabit it, are discussed — social representations theory (Moscovici, 1961, 1976, 2008), and the social amplification/attenuation of risk framework (SARF) (Kasperson et al, 1988e).

Social representations theory

During the 1960s and 70s many social psychologists began to challenge "*the dominance of models that ignored the role of structural and ideological factors in the framing of human behaviour*" (Elcheroth et al, 2011 p 734). Key amongst these, say

[32] For example Bostrom, Fischoff and Morgan (1992) constructed diagrams to represent people's mental models of the perceived risks associated with radon.

Elcheroth et al (ibid), were Serge Moscovici and Henri Tajfel whose theories of social representations (Moscovici, 1961, 1976, 2008) and social identity (Tajfel, 1974; Tajfel and Turner, 1979) became the "*twin pillars*" (Elcheroth et al, ibid p 735) of a new social psychology in which context as well as the interaction between individuals was considered as an important influence on behaviour.

Social identity theory premises that an individual's concept of self is greatly affected by the groups to which they perceive themselves to belong, and thus that their ideas about the world partly, at least reflect group norms. Social representations theory, on the other hand, focuses more on the means by which people translate and internalise collective knowledge from the historical, sociocultural and group contexts in which they participate and has been seen as offering new insights into how people perceive risk and behave in response (Joffe, 1999, 2003); "*how the 'we' becomes contained in the responses of the 'I'."* (Joffe 2003 p 60). Thus, as Breakwell (2014 p 284) points out, social representations theory may be helpful in explaining how mental models of newly identified hazards arise.

Moscovici suggested that two processes are involved in forming social representations, objectification and anchoring. Objectification refers to the translation of something unknown and possibly abstract into something known and concrete. This is then 'anchored' by comparing it with and putting it in the same category as something already familiar; Moscovici (1988) gives the example of the way in which some people responded to a new illness, HIV/AIDS, by suggesting that, as a mysterious and dreaded disease, it was similar to and thus should be treated in the same way as tuberculosis had been dealt with in the past[33].

Social representations theory does not in any way contradict the mental models approach. Rather it provides a different perspective by emphasising the additional impact of external, social factors on influences which are internal to an individual.

[33] Other possible anchors for conceptualising HIV/AIDS, such as syphilis or the plague have also been suggested (Patton, 1990; Joffe, 2003)

> *"SRT emphasizes the specific, complex content of common-sense thinking regarding particular risks. … the raison d'être of the theory lies in why and how society creates social representations, and the common sense that evolves from this. People construct risks through lenses tinged with elements of group attachment and of the experiences of their in-groups and selves, in terms of both the contemporary imagery they are exposed to and past misfortunes. These elements do not distort a 'real risk'. Rather, they are the 'reality' in the minds of those who look upon the risks"* (Joffe, 2003 p 68)

Both the mental models and social representations approaches show in their different ways that risk perception is dependent on more than a person's cognitive assessment of a hazard or threat. What they do not do, however, is offer any sense of how perceptions may change over time. This crucial dimension is a key constituent of the social amplification/attenuation of risk framework, to be discussed next.

The social amplification/attenuation of risk framework (SARF)

Like cultural theory, the mental models approach and social representations theory, the social amplification/attenuation of risk framework (SARF), which was explicitly constructed with risk research in mind (Kasperson et al, 2003), takes a holistic approach in seeing perception as a product of the interaction between psychological, social institutional and cultural processes (Pidgeon et al, 2003; Taylor-Gooby and Zinn, 2006) and can be useful for broad brush analysis of complex events (Breakwell, 2014). Although it has never been promoted as a testable theory (Pidgeon et al, ibid; van der Linden, 2015), Rosa (2003, p 49) considers there is clear evidence that it can be used empirically to generate testable hypotheses.

For this thesis, however, the most important facet of SARF is that it recognizes, as most other approaches to risk perception (and indeed social science research in general[34]) do not, the significance of temporality in influencing how people conceptualise hazards and what they do in response. SARF models a dynamic process (Break well, 2007, 2014) in which hazards may be assessed differently under different circumstances. This key insight of SARF, that the salience of a hazard may wax (amplify) and wane

[34] "*social science research has, for much of its history been characterised by a rudimentary attention to time and time-related issues*" (Roe et al, 2008 p1). See also McGivern et al. (2017)

(attenuate) over time according to external situations and changes in risk perception, is particularly relevant to the subject of this thesis, since, as will be seen in the next chapter, there is good evidence to show that perceptions of the importance of different hazards in relation to patient safety have varied both over the centuries and in recent years.

For instance, Bennett and Ferlie (1994) and Bennett (1996) identified a number of examples from in-depth interviews collected during empirical research on the early years of HIV/AIDS crisis of how changes over time may affect perceptions of risk. These data suggested that at any particular moment, individuals were able to identify a number of actual or potential threats which they perceived to have salience for them and/or others. However, the perceived magnitude of the risks posed by these threats did not remain static, even for specific individuals. A specific issue which, under one set of circumstances and at one particular point in time, had come to be perceived as overwhelmingly threatening (amplification), could, under a different set of circumstances or at a different time, appear less urgent than other previously ignored or unrecognised risks, forcing revision of the first response (attenuation)[35].

The development of sociological as well as psychological approaches to risk has greatly enhanced understanding of the concept (Taylor-Gooby and Zinn, 2006), and by factoring in social influences, SARF and the other approaches discussed in this section have made an important contribution to interpreting risk perception, amply demonstrating that people both perceive multiple hazards and (at least in theory) may respond to them in different ways. However despite much empirical work carried out in both areas over recent years there has been little focus on the processes that lead people, faced with multiple hazards, to attend to one particular threat rather than another. Crucially, for this thesis, the circumstances under which one perceived hazard may take precedence over another, qualitatively different, threat when it is

[35] Examples of such processes were demonstrated in the data collected, but as Bennett (1996) points out the research was not conducted to specifically investigate risk perception and all that could be concluded was that not enough is known about the circumstances under which one perceived risk factor may take precedence over another.

necessary to make choices about how to respond is still rarely addressed (Sullivan-Wiley and Gianotti, 2017). The next section explores such evidence as is available on this issue from the risk research perspective and looks briefly at a model from the stream of research on decision-making which acknowledges the existence of multiple potential choices and hence that these need to be ranked in order of importance before decisions about behaviour can be made (Saaty, 1987, 1988, 1999, 2016).

2.1.3 The process of decision-making in a multi-hazard environment – a neglected issue

When hazards are identified, action is frequently required to try to minimize the likelihood of an adverse outcome. However, for any individual responding to a perceived threat or threats, decision-making is likely to involve both taking risks (i.e., assessing and acting on the probabilities of achieving particular outcomes) and experiencing risk, possibly from the threat itself, but also, as has been argued, from other perceived hazards in the environment. In such situations, which have been described as involving both risk-as-choice and risk-as-circumstance (Turner, 1994), the focal threat may not be the only, or even the most important element an individual has to consider, and choices may have to be made between conflicting types as well as degrees of risk.

The problem of how people decide which of multiple threats in their environment is the most salient has not gone completely unnoticed by risk researchers. Indeed, although those working in the cognitive tradition have tended to concentrate on how people choose between the same or similar hazards, the issue was noted four decades ago by Fischhoff et al:

> *"if hazards are dealt with one at a time, many must be neglected ... [and] … the information needed to establish priorities is not available"* (Fischhoff et al, p131)

However they did not suggest a method of investigating the ways in which people select an action, when forced to do so in their everyday lives; and while the survey methods used in psychometric approaches do frequently address people's perceptions

of multiple and qualitatively different hazards[36], as do the more holistic sociological approaches discussed in the last section, the results only record how people *say* they perceive and would respond to hazards, they are not backed up by evidence of action in the actual circumstances (Boholm 1996). Even analyses of disasters and accidents (Turner 1976, 1978; Reason et al 2001, Perrow and Guillen, 1990; Quarantelli, 1987, 1995), which do at least access accounts of how people have behaved during real world events, have usually focused, both at the personal and the organisational levels, on multiple perceptions of risk in relation to single, not several qualitatively different, hazards.

Instead, much of the work on the decision-making process under conditions of perceived risk and uncertainty has focused on the generation of theoretical models that will predict behaviour in response to the perceived risk from one specific hazard, often utilizing lottery-type situations with relatively discrete and discernible outcomes (von Neumann and Morgenstern, 1947; Kahneman and Tversky, 1979; March, 1988; Sitkin and Pablo, 1992; Shafir et al, 1993). Such models of choice have explanatory value under specified conditions, but almost from the beginning it was acknowledged that their general applicability was restricted to agreement that decision-making is unlikely to be solely mediated by objective assessments of probabilities and are likely to be influenced in different and complex ways by individuals' perceptions of the social and institutional contexts within which the hazard has arisen (Fischhoff, 1989; Pidgeon et al, 1992).

Theory concerning how people initially choose which threats to focus on appears to have developed little over the years. For instance, Bostrom and Löfstedt (2003) called for increased understanding of the role that salience plays in moving people along the awareness-action continuum. In 2008, researchers studying hazard risk perceptions and protective behaviour in relation to various environmental threats, noted that

[36] Though Sjöberg (1999b, 2000a) has criticised such methods on the grounds that the results do not make clear the relative importance for a person's choice of a hazard's 'riskiness' (i.e. their perception of the *likelihood* that it will happen) as against the possible consequences of their decision if it *does* happen.

decision-making tends to be examined serially, one hazard at a time, despite the fact that people's environments are characterized by many hazards that can impinge either serially or simultaneously (Perry and Lindell, 2008) and, in a study of how householders might assess and respond to multiple hazards affecting their home environment, the authors bemoaned the lack of a causal model relating multiple risk perception to behaviour (Lindell and Hwang, 2008). The following year Aven, in a comprehensive review of risk perspectives in decision-making, acknowledged that "*there is no simple and mechanistic method or procedure for balancing different concerns*" (Aven, 2009, p804), and, more recently, Aven and Zio (2014) in a paper based on findings of a workshop in which foundational issues in risk assessment and management were discussed, reported that one concern raised was "*How can we decide when one risk is larger than another?*" (Ibid, p 1170). Indeed, Breakwell (2006, 2014) has argued that since most of the studies that examine decision-making in uncertainty are concerned with risk estimation rather than choice "*it would be reasonable to ask whether they address decision-making at all*" (Breakwell, 2006, p 107).

The current situation is succinctly summed up in a recent paper by Sullivan-Wiley and Gianotti (2017) who, while acknowledging that research has demonstrated many factors that influence individual risk perception, maintain that there is still little known "*about how individuals perceive and prioritize multiple hazards at once and how this relates to their adoption of protective action strategies*" (Ibid, p 138).

Lack of knowledge about preliminary processes of selection from among many and frequently qualitatively different threats, and the dearth of unambiguous links between perceptions of risk and behaviour has not, however, prevented those who wrestle with real world operational issues from developing systems to try to improve the decision-making process. The next two sections look, first at the literature concerning the aetiology of and response to 'adverse events' - taken in their broadest sense as happenings which endanger human health and happiness; and then, in Section 3, at various ways of attempting to predict and avoid potential hazards through various formal systems for improving decision-making and safety.

2.2 Adverse events and patient safety - definitions and a literature review

2.2.1 Defining adverse events

An internet search for the term 'adverse event' will show that such happenings have come, in common parlance, to be defined in a very narrow way, as incidents which affect the wellbeing of persons involved with the delivery of healthcare. Its most common usage is in relation to harm involving a patient (i.e. someone who has an illness), but sometimes may relate to a healthy volunteer (as in drug trials) or a member of staff in a healthcare facility. On the other hand, if the terms are considered separately, at face value, an adverse event can be defined quite simply as an occurrence which is perceived to be undesirable in the circumstances in which it occurs. It may seem perverse, since this research is focused precisely on incidents affecting patient safety, to choose to use this more general definition of the term. However if adverse events are to be situated in the broader literatures of risk and decision-making and safety science it is initially necessary to move away from the healthcare context and to look at what is known about hazardous situations, and how people recognise and respond to them when they occur.

The last section offered evidence from the literature that discrete hazards may be perceived and responded to in many different ways by individuals, depending on their own personal characteristics and aspects of their environment. Furthermore, some evidence was offered for the thesis that at any one time an individual is likely to be aware of threats posed by many different hazards and may need to make judgements, not only about how to respond to a perceived hazard, but also which hazard to select in the first place.

This section moves away from a focus on the individual response to perceived risk to look from another perspective at the different sorts of hazards that people may encounter, and to consider how multiple perceived threats in the environmental context in which an individual is situated have the potential to affect decision-making. This requires accessing a number of disparate literatures, linked by a shared focus on occurrences (in terms of this review - adverse events) seen as disadvantageous to

human health and happiness, threatening people and the things they value (Kates and Kasperson, 1983). These literatures range from the macro analysis of the sociological underpinnings of disasters, through the organisational response to hazards and risk, to a more micro level consideration of what is known about the social psychology of small scale accidents.

2.2.2 Disaster and accident research

Historical development

Interest in understanding and responding to adverse events is not purely a recent phenomenon, as was implied by some writers[37] around the time that risk research became an area of key interest to many scholars following a number of large scale health disasters, in particular HIV/AIDS and BSE. Indeed, as Turner (1994) and Quarantelli (1987, 1995, 2009) point out, far from the view that sees many earlier societies as passively accepting 'Acts of God', there is evidence of considered responses to perceived hazards, such as attempts to control flooding, and limiting damage from fires and earthquakes dating as far back as the 20th century BC. However, it is true that in terms of continuous and systematic social scientific activities the area of disaster research is barely half a century old (Quarantelli, ibid).

Of course, a large proportion of the disasters suffered by civilizations in pre-industrial times did, at least initially, come about as a consequence of naturally occurring phenomena, the incidence of which was and still is beyond human control. What have become more frequent in post-industrial societies are large scale adverse events occurring wholly as a consequence of situations and infrastructures created by human agency. Quarantelli (1995), in a paper reviewing the historical development of organized efforts to plan for and respond to disasters, describes the changing perceptions of such events from the earliest days, when disasters were seen primarily as resulting from astrological or supernatural forces; through 'Acts of God or Nature', to an increasing recognition of the influence of 'Acts of Men and Women';

[37] Notably Beck (1992) and Giddens (1991)

> *"an earthquake for instance is but a physical happening that does not have any social consequences unless there are human beings who by their decisions and actions create built environments that can be impacted. A hazard at most can only set the stage for an actual disaster; a disaster as a social happening is both created by and manifested by dysfunctional human and group behaviors."* Quarantelli (2000, p 4)

and even, most recently, the contribution made to disasters by the structural and cultural dimensions of social systems, i.e. 'Acts of Society'.

> *"disasters occur when one or more of the sociocultural systems that a population depends on fail to provide an adaptation to the environmental conditions which surround it, or when one of these systems produces, from within its own technological order, an event that threatens the population. The problem of understanding disasters then amounts to understanding the relationships between particular types of human systems and the environmental conditions to which they are related as adaptive devices."* (Bates and Pelanda 1995:149 - quoted in Quarantelli 1995)

There are isolated writings and studies looking at the social factors involved in disasters from as far back as Voltaire, who commented on the Lisbon earthquake of 1755, to a number of research studies during the early part of the 20th century (for brief overviews of this work see Quarantelli (2009) and Turner (1978, Chap 3)). However, the systematic and institutionalised study of disasters from a social science perspective did not come about until the second half of the 20th century when, in 1963, a group of scientists (one of whom, Quarantelli, had been involved for some years with investigations originally instigated by the military into the civilian response to disasters) established the first Disaster Research Centre at Ohio State University.

Understanding the aetiology of disasters - the work of Barry Turner (1937-1995)

Despite this gathering head of steam, however, most research into disasters up to the mid 1960s and 70s (almost exclusively situated in America) focused on outcomes and how people responded to naturally occurring phenomena such as floods and other geophysical events,. That research did not, therefore, tend to throw much light on the conditions and environment within which the hazard arose and which may have affected its consequences. It was this aspect of the existing literature which exercised Barry Turner (1937-1995) when he began his own PhD research into the organisational and inter-organisational development of disasters in the early 1970s. Published at the

beginning of a distinguished academic career, cut sadly short by his untimely death, the seminal book based on his thesis (Turner 1978) notes that:

> *"reviews of the field [of disaster research] in the 1960s and 1970s have remained resolutely wedded to a post-disaster orientation maintaining a concern with reactions to disaster, and with rescue, relief and recovery, an orientation which allows no place for the study of causes or origins of disaster."* (Turner, 1978, 38)

Thus (using Turner's original examples), the colliery tip slide at Aberfan, the Hixon level crossing accident, and the fire which destroyed the Summerland leisure centre (Turner 1976, 1978) could not, he argued, have happened outside the manufactured environment in which they took place. They were, in Turner's parlance[38], "*man made disasters*" and as such had potential for being investigated, understood and possibly avoided in future.

Turner's book, and the 1976 paper in Administrative Science Quarterly which preceded its publication, stimulated immediate and continuing interest from academics interested in understanding organisations and how they work.

> *"It continues to influence our current thinking about the social organisation of mistakes in a kaleidoscope-like fashion. The work dislodges old patterns generates new patterns and fosters awareness that numerous configurations are possible in the genesis of disasters."* (Weick, 1998)

It was Turner's insights into the multiple and qualitatively different causes of these events that caught the imagination of scholars interested in risk and have particular relevance for this review, given its focus on the failure of human-made systems and procedures constructed for the safe delivery of healthcare. There is, however, a key difference in scale between the perspective originally chosen by Turner in analysing the causes of disasters, and the perspective of the research for which this review is undertaken. Turner and the many other scholars whose primary interest is in the sociological analysis of large-scale adverse events[39], look at disasters and see numbers

[38] When Turner's book was published in 1978 "man-made" was not considered an unacceptably sexist term. It is replaced by "human-made" elsewhere in this thesis.

[39] The E L Quarantelli resource collection at the university of Delaware's Disaster Research Centre contains more than 55,000 items on the social and behavioral science aspects of disasters.

of small procedural failures and other technical and social factors coalescing and interacting to bring about a major incident involving a lot of people. The thesis of this research is both more limited and in some ways wider. Certainly the actual incidents considered are small scale and, even had they resulted in harm, would have affected very few people. On the other hand, attempting to understand how and why people identify and record such small events requires a much more detailed analysis of the motivations and perceptions of those involved than could be essayed by those interested in disaster research.

Despite the difference in scale, however, three aspects of Turner's work on disasters are particularly relevant to this research. First, he looks at the origins rather than the consequences of disasters. Secondly he looks at disasters which come about wholly as a result of the multiple failures of human-made systems in a sociological context. Lastly, although he does not explicitly consider risk perception, it is clear from his analyses of events that one of the contributing factors in the preconditions of disaster is that the many different perspectives of the situation held by the people involved lead to them focusing on hazardous aspects of their environment which may not be relevant to the focal hazard. So (again using Turner's original examples), for Aberfan he found much concern about safety issues in relation to the mines themselves but "*a pervasive institutional set of attitudes, beliefs and perceptions which led to a collective neglect of the problems of safety relating to tips*"; concerning Hixon, people had considered slow vehicles as a potential hazard at level crossings, but in relation to arcing from overhead electric wires, or potentially stalling on the crossing, rather than vehicles actually being physically unable to cross during the warning time allowed; while for the catastrophic fire at Summerland a contributing factor was the developers "*cutting corners*" in response to the perceived risk of not being able to open on time.

While natural events such as earthquakes, floods and hurricanes frequently destroy the lives and livelihoods of hundreds of people, exclusively human-made disasters of this magnitude happen less often[40]. There are, thankfully, not many Aberfans, nor

[40] Though it should also be recognised that natural disasters may be amplified or ameliorated by human intervention

indeed Chernobyls or Bhopals. Organisationally bounded events on a relatively smaller scale, affecting fewer people but possibly happening more frequently, tend to be described as 'accidents' rather than 'disasters'; a change of terminology which conveys a sense of something less unexpected, an everyday occurrence[41]. With the impression of something both more limited in scope and also less rare comes also the prospect of addressing the issue of prevention, which directs attention to a new stream of literatures, concerned this time with both the understanding and prevention of adverse events, which may loosely come under the heading of what is now called 'safety science'.

The variable concept of safety and the rise of safety science

As a concept, 'safety' is theoretically achievable, and may be seen as the condition of being protected from danger, risk or injury (Oxford Dictionary), or, more explicitly, as:

> *"a state in which hazards and conditions leading to physical, psychological or material harm are controlled in order to preserve the health and well-being of individuals and the community."* (Québec WHO Collaborating Centre for Safety Promotion and Injury Prevention, 1998)

In practical terms, however, safety can never be an absolute, indeed Aron Wildavsky (1930-1993) described the search for safety as a "*balancing act*":

> *"For the most part, safety and danger coexist in the same objects and practices. Under the right (or wrong) conditions everything we need for life can also maim or kill: water can drown, food can poison, air can choke. … The trick is to discover not how to avoid risk, for this is impossible, but how to use risk to get more of the good and less of the bad. The search for safety is a balancing act . For if the axiom of connectedness holds, there is no choice that results in no harm."* (Wildavsky 1988 p 5)

For this reason, it is suggested that another definition of 'safety', "*the control of recognized hazards to achieve an acceptable level of risk*" (Bradley et al, 2016), is more

[41] Though this is not always the case, since major human-made disasters like the ones listed previously may also be termed by some as 'organisational accidents', as in this quotation "... *[Organisational accidents are] the comparatively rare, but often catastrophic events that occur within complex modern technologies such as nuclear power plants, commercial aviation, the petrochemical industry, chemical process plants, marine and rail transport, banks and stadiums*" (Reason 1997). In addition, Hood et al (1992) point out that small scale but very numerous accidents, such as those involving road traffic may also be categorised as disasters.

useful and acknowledges the large body of work in the risk research tradition addressing the issue of how the degree of risk can and/or should be determined (e.g. Lowrance, 1976; Fischhof et al, 1979; Fischhof et al, 1981; Slovic, 2000; Jones-Lee & Aven, 2011a,b; Baybutt, 2014; Ale et al, 2015). The question posed by all this work is essentially the same - "*how safe is safe enough?*" (Starr, 1969; Fischhof et al, 2000).

The idea that safety is relational, that risky situations can only be altered to become more or less safe, is not in any way new, of course. The epistemic underpinnings of safety science go back a long way and come essentially from technological risk assessment and regulation. Safety in factories and mines began to be of concern in Victorian times, with the passing of various acts relating to safety and the prevention of accidents. However, development of formal methods of safety analysis started around the middle of the 20th century, pioneered by the nuclear industry, aviation and space technology and spreading to other industries using complicated systems where accidents would have serious far-reaching consequences (Suokas, 1988). A large number of systems evolved (for a review of 62 of these see Tixier et al, 2002), usually grouped collectively as Process Hazard Analysis (PHA), all seeking to identify answers to key questions about possible hazards, the risks they pose and their tolerability (Baybutt, 2014).

The principles that evolved were brought together and enshrined in the Health and Safety at Work Act of 1974, which, though substantially modified in 2008, still provides the bedrock for current UK legislation (Health and Safety Executive 2009). The Act places specific responsibilities on employers to assess the risks involved in the work undertaken by their employees and prescribes a simple algorithm to follow:

> *"Five steps to risk assessment: identify the hazards; decide who might be harmed and how; evaluate the risks and decide on precautions; record the findings and implement them; and review your risk assessment and update if necessary."* (HSE 2009)

This algorithm is open to various sorts of interpretations, and indeed the Health and Safety Executive makes explicit that it *"does not stipulate a single risk assessment methodology, allowing organisations to use different methodologies according to the circumstances."*. Clearly, however, it fosters a deterministic process which lends itself

to deriving quantitative measures of the risks posed by particular hazards. This approach to risk assessment was adopted by the influential 1983 Royal Society Report on Risk and as Ashworth, in his introduction to the report of a one-day discussion meeting on Science, Policy and Risk in March 1997, notes:

> *"Within this carefully defined and specified framework it is indeed possible to produce an objective and numerically self-consistent list of risks associated with various activities. Such lists are extremely useful in devising safety procedures ... [and] have been widely accepted by governments as providing a suitable basis for devising regulations and codes of practice."*
> (London Royal Society and Ashworth, 1997 p 3)

As with disasters, the sociological perspective on accidents is very different from the technological and was a later development in the literature. The 1983 Royal Society Report, though taking a predominantly technical approach, did indeed have a chapter on risk perception, but this was seen primarily as the domain of psychologists. Presciently for its time, the conclusions of that chapter, acknowledged the inadequacy of relying solely on technological assessments of risk (Pidgeon et al*,* 1992). This was a field which was fast developing and broadening. For instance, between the publication of the 1983 Royal Society Report – "Risk Assessment" and its successor in 1992 (entitled "Risk: Analysis, Perception and Management") significant empirical work had been done[42], and public and policy awareness of the area had rapidly increased. Recognising and responding to the considerable developments in the field, this second Report gave far greater prominence to the debate about the problems inherent both in determining the causes of accidents and devising systems to avoid them.

This new, more complex, perspective struck at the very heart of all that it was thought was known about the aetiology of adverse events. Previously, accidents (other than those due solely to random juxtaposition of humans and inanimate non-manufactured entities) had been seen as being caused by either human error, or failures at the person/machine interface. Hence safety measures needed to be focused either on individual failings such as inattention, carelessness, inexperience, negligence or

[42] Pidgeon et al*,* (1992) quote a bibliography by Rohrmann, Weidermann and Stegelmann (1990) which identified almost 1000 publications on the subject.

recklessness, or on aspects of human engineering (Reason, 1997). Now a new model[43] needed to be considered in relation to safety management, which privileged the role played by organisational factors. In this model, individual or human engineering error is viewed "*more as a consequence than a cause*".

> *"Human factors problems are a product of a chain of causes in which the individual psychological factors (that is, momentary inattention, forgetting, etc.) are the last and least manageable links."* (Reason, 1997)

> *"The organizational context of human factors should include not only the limited sequence of the HFE influencing the design engineer, which in turn influences the equipment the operator uses, but how all of these are influenced by the social structure of the organization and influence it in turn."* (Perrow, 1983)

Thus, in the 1980s and 90s, there was an increasing recognition that not only did disasters and accidents result from multiple and qualitatively different , rather than unitary, hazards in the environment, but also that there were multiple perceptions of the risks associated with those multiple hazards. It can be no coincidence that it was during this period that Ulrich Beck (1986, 1992) proposed what he called "*the new paradigm of the risk society*". Seeing this as a fundamentally different way of thinking about how society deals with social problems he asks:

> *How can the risks and hazards systematically produced as part of modernization be prevented, minimised, dramatized, or channelled? Where do they finally see the light of day in the shape of 'latent side effects', how can they be limited and distributed away so that they neither hamper the modernization process nor exceed the limits of what is 'tolerable' - ecologically, medically, psychologically and socially?* (Beck 1992)

Illuminating the factors which interact and coalesce to cause an accident not only allows retrospective understanding of adverse events but facilitates consideration of ways to avoid similar incidents occurring again. Thus, taking a future perspective, causes become potential hazards, and the task one of assessing the degree of risk they pose and trying to reduce or eliminate it, while recognition of the possibility of multiple hazards presenting simultaneously leads inexorably to consideration of how

[43] Reason (1997) sees this model as owing its intellectual underpinnings to Turner's work on human-made disasters (see previous section) and Charles Perrow's influential book "Normal Accidents" (Perrow 1984)

such hazards may be ranked in order to make decisions about which to prioritise. The next section considers the development of various ways of assessing and managing perceived risk, looking, in particular, at the recognition and management of multiple threats in the environment.

2.3 The advent of risk management

Ways of evaluating and responding to the identified threats leaned initially towards quantitative, rather than qualitative, methods. However, by the early 1980s it was being acknowledged that traditional scientific methods alone were not sufficient to deal with the need to assess and manage risk (Cumming, 1981; Weinberg, 1981), and that qualitative, value based judgements and decisions influence every part of that process (Aven, 2015). In addition, during the 1970's and 80's, increasing public and political concern about risks posed by predicted hazards with global significance (e.g. the environment) led to development of the philosophical concept which came to be known as the 'precautionary principle', in which lack of scientific certainty about a hazard does not justify failure to take preventative action. Admittedly application of this concept through regulatory action has proved more contentious (for a review see Breakwell, 2014, p168-170), not least because, as Aven (2015) points out, decisions about what constitute scientific uncertainties are themselves subject to value judgements. Nevertheless, in the newly risk-conscious world of the early 2000's the widespread adoption of the concept of precaution, summed up in the catchphrase '*better safe than sorry*', permeated society, despite being seen by some as unhelpful (Sunstein, 2002) and promoting a "*culture of fear*" which simply intensifies a collective sense of "*existential insecurity*" (Furedi, 2009)

Despite such criticism, the view that it may be important to "*do your utmost to avoid complete ignorance about serious risks*" (Vlek, 2011) continues to drive efforts to derive answers to what Vlek (2010) says is the crucial question - how to assess and manage uncertain risks. However, despite ever increasing interest in processes of risk

assessment and risk management developing consensus among practitioners and academics about how best to achieve this goal is proving elusive[44].

2.3.1 Approaches to risk assessment

Risk assessment, in essence, involves the attempt to evaluate potential loss from a specific hazard and determine the probability of that loss occurring. Originally, risk assessment was almost wholly applied in an engineering sense to estimate technological safety margins using quantifiable measures of the reliability of components (for an early review of risk assessment methods in accident prevention see Suokas, 1988) . This approach is still used in, for example, fields such as the construction industry, motor manufacturing and toxicology, where it is possible to apply such techniques to controlled areas of organisational life where routine repetitive activities generate reliable data (Horlick-Jones and Rosenhead, 1995). Since, even in these situations, there is always some residual risk which it is not practicable to devise ways to avoid (Crouch and Wilson 1982, Crossland et al*,* 1992), cost-benefit analysis and the judgement of those doing the analysis is key to this approach.

> *"All systems have a probability of failure and the complete avoidance of all risk of calamitous failure is not possible, but the objective of engineers must be to reduce the probability to an acceptable individual and societal risk. ...However it is necessary to be realistic and allocate limited financial resources on the basis of cost-benefit assessment"* (Crossland et al 1992 p 13)

In the late 1960s and early 1970s, decision theorists widened the scope of risk assessment to facilitate the analysis of more strategic situations by allowing more subjective assessments of probabilities using Bayesian statistics (Raiffa, 1968, Keeney and Raiffa, 1976). Such an approach involved using judgements about difficult-to-test issues, where the costs of further investigation would be high and might still not greatly reduce uncertainty. However, although providing a framework which allowed

[44] For various views on this issue see the debate between Aven, North, Cox and Vlek in Risk Analysis Vol. 31 No 10 -October 2011

more complex decisions to be addressed, this did not necessarily improve the quality of the decisions taken. As Nakamura et al (1994) put it:

> *"For assessing risks in this context we must often rely on an inferential context that involves a complex chain composed of few facts, numerous hypotheses, multiple proxy variables and a plethora of assumptions"*
> (Nakamura et al, 1994 p 137)

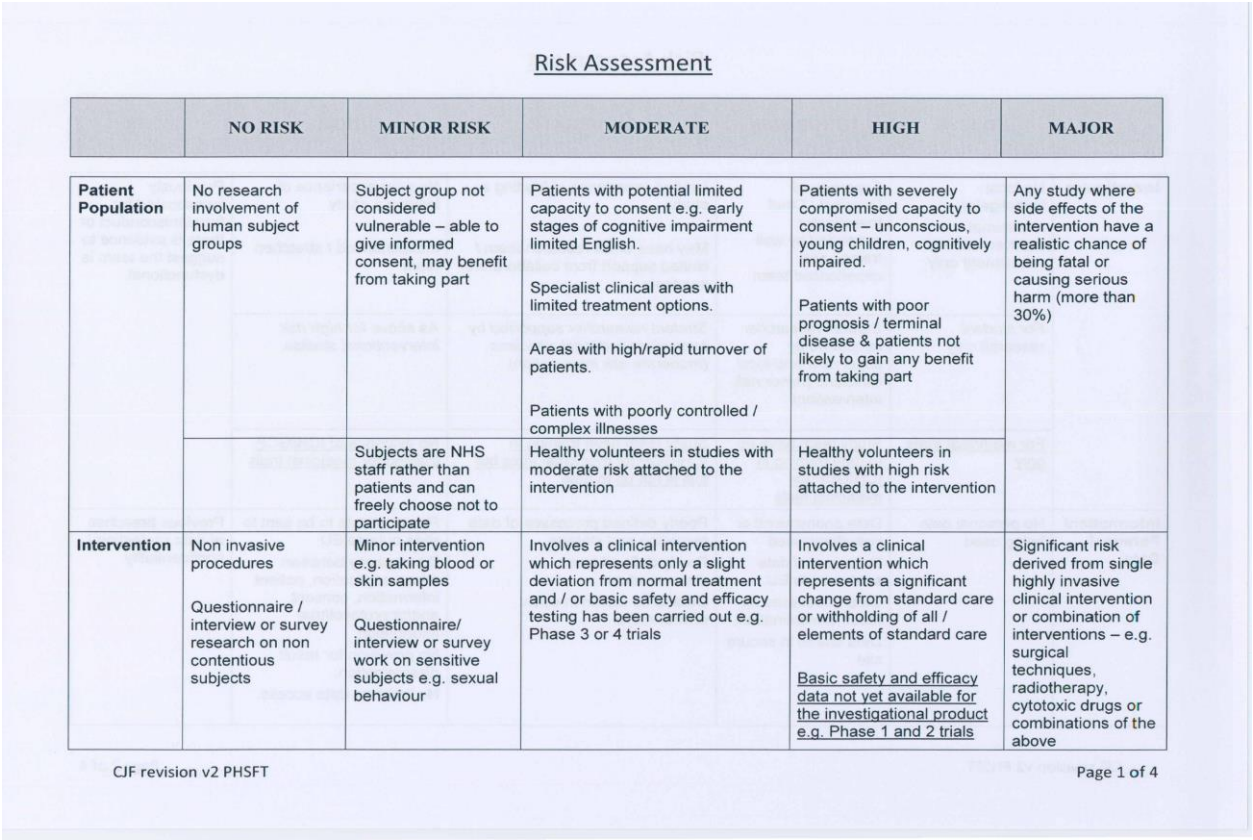
In addition, such approaches still rely heavily on the particular perspective of the decision makers and their implicit value judgements about the acceptability of the risks involved (Crossland et al*,* 1992; Dennis, 1994; Nakamura et al*,* 1994*;* Horlick-Jones and Rosenhead, 1995).

Since different hazards are likely to be assessed differently by different people, there are thus profound difficulties in using either assumptions about probabilities or preferences in attempting to manage risks (Horlick-Jones and Rosenhead, 1995). One way of attempting to address these difficulties is using Problem Structuring Methods (PSM) of risk assessment (for a review see Rosenhead,1989). The PSM approach is designed to improve decision-making for problems which are ill-defined, include intangibles and uncertainties and have many stakeholders with distinctive perspectives or conflicting interests. Using groups and a participative and iterative mode of operation, uncertainties are captured as alternative possibilities rather than numerical probabilities and value differences are embraced, rather than traded-off. Complexity is captured not by mathematics but by the use of diagrams (Horlick-Jones, 2007).

In practice, combinations of all or some of the above approaches have led to the development of a vast number of risk assessment tools, tailored to the particular characteristics of specific hazards (for instance, Yang et al (2010) compare nine risk assessment tools for the relatively discrete area of prediction of violence in mental health patients). Indeed, as Cohen (1996) notes, "*for small undertakings*", and if all that is needed is for an organisation to comply with the HSE's requirements using their simple algorithm (see Section 2.2), a more judgemental risk assessment is appropriate and it may not be thought necessary to use any specific tools at all but just to invent an

'in-house' assessment form with simple face validity, an example from City Trust[45], the hospital where the research reported in this thesis took place, is shown in Figure 2.1 below.

Figure 2.1 Internally designed risk assessment tool developed without reference to any particular assessment technique but according to internalised knowledge of the subject



Risk Assessment

	NO RISK	MINOR RISK	MODERATE	HIGH	MAJOR
Patient Population	No research involvement of human subject groups	Subject group not considered vulnerable – able to give informed consent, may benefit from taking part	Patients with potential limited capacity to consent e.g. early stages of cognitive impairment limited English. Specialist clinical areas with limited treatment options. Areas with high/rapid turnover of patients. Patients with poorly controlled / complex illnesses	Patients with severely compromised capacity to consent – unconscious, young children, cognitively impaired. Patients with poor prognosis / terminal disease & patients not likely to gain any benefit from taking part	Any study where side effects of the intervention have a realistic chance of being fatal or causing serious harm (more than 30%)
		Subjects are NHS staff rather than patients and can freely choose not to participate	Healthy volunteers in studies with moderate risk attached to the intervention	Healthy volunteers in studies with high risk attached to the intervention	
Intervention	Non invasive procedures Questionnaire / interview or survey research on non contentious subjects	Minor intervention e.g. taking blood or skin samples Questionnaire/ interview or survey work on sensitive subjects e.g. sexual behaviour	Involves a clinical intervention which represents only a slight deviation from normal treatment and / or basic safety and efficacy testing has been carried out e.g. Phase 3 or 4 trials	Involves a clinical intervention which represents a significant change from standard care or withholding of all / elements of standard care Basic safety and efficacy data not yet available for the investigational product e.g. Phase 1 and 2 trials	Significant risk derived from single highly invasive clinical intervention or combination of interventions – e.g. surgical techniques, radiotherapy, cytotoxic drugs or combinations of the above

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However, the main and persisting anxiety about the use of assessment tools in general remains as one of suitability for the task, a concern expressed clearly by Turner (1994).

> *"risk assessments are tricky, they are very context-sensitive and ...[are] likely to be constructed and interpreted differently by different stakeholders, especially where the stakes are high and where high-outcome, low-probability events are under discussion"* (Turner, 1994 p 149)

In addition, and importantly for this thesis, using risk assessment tools such as the widely used process hazard analysis method, HAZOP, may result in identifying large numbers of conceptually discrete threats which may lead to inaccurate and unjustified

[45] A pseudonym

decision-making as assessors have to use their subjective experience and judgement to select which threats to prioritise (Baybutt, 2014, 2015; Othman et al, 2016). Aware of this problem, decision maker over the last several decades have utilized various methods of making choices about which threats to attend to (Velasquez et al, 2013)[46].

One of these, the Analytic Hierarchy Process (AHP), developed by Saaty (1980), explicitly recognises that the problem posed by the simultaneous presentation of multiple threats is one of prioritisation. Saaty saw the prioritisation process as one in which "*one must consider all observed factors and then establish priorities*" Saaty (1987, p 160) and hypothesised an analytic hierarchy demonstrating "*the relative intensity of what is important to people ... not just what is likely to happen, but also what is important and what is not important if it does happen*" (Saaty, ibid). He later expanded this theory by proposing that complex decisions involving the interaction and dependence of higher-level elements in a hierarchy on lower-level elements, could be conceptualised as a network (Saaty, 1999). Saaty's insights in relation to the decision-making process seem particularly helpful in developing understanding of how people cope with responding to risk in a multi-hazard context, the focus of this thesis.

2.3.2 Risk management

There would be no reason to develop tools to assess risk if those assessments were not to be used to try to affect outcomes. Indeed, two of the three main functions of assessment, suggested by Vlek (2011), are to 1) support risk-taking decisions and 2) motivate safety control. Although it is evident that attempts towards managing perceived risks are not restricted to recent history[47], it is incontrovertible that since the early 1990s contemporary society has become increasingly preoccupied with trying to control uncertainty by finding ways to make the future calculable and knowable (Turner, 1994). Partly this may be due to the concomitant rise of the prospect of litigation, if it proves possible to assign causality for failure to prevent adverse events to people or institutions. Paraphrasing Beck's (1986, 1992) idea of the 'risk society',

[46] See Velasquez et al, 2013 for a review of some of the most important of these multi-criteria decision-making (MCDM) methods

[47] As discussed earlier - see Section 2.2

Power (1997) has suggested it might instead be named the 'audit society'. Indeed, it might almost be said that what we really have is a 'blame society'. However, while it may be taking it rather too far to suggest, like Giddens (1991), that risk has displaced all other key variables to become society's sole organising principle, it is difficult to disagree with the conclusion in his Reith lecture that "*whichever way you look at it, we are caught up in risk management*" (Giddens, 1999).

Like risk assessment, risk management can be considered at many levels. These range from the micro-management of very small aspects of the environment, such as the enforcement of specific safety procedures relating to discrete tasks, to attempts to develop systems to handle and control diffuse and inherently opaque issues such as threats from global warming, or genetically modified crops.

In between these extremes comes a huge array of more or less interventional ways of dealing with a perceived need to prevent future adverse events by prospectively structuring the present. Essentially these can be categorised into direct and indirect approaches to risk management.

Direct approaches to risk management - algorithmic methods

Direct, algorithmic approaches have a history which long pre-dates the focus on risk so ubiquitous in today's society. In their simplest form they may be instituted by an individual on behalf of their own need to manage the risks they perceive in their environment, such as the locking up routine a householder might go through to avoid the risk of burglary. The basic algorithm has the following format: a hazard is identified, a risk assessment is carried out and a procedure is decided upon by the carrying out of which the hazard can be avoided. Further examples of this in an organisational context would be the system laid down for counting the number of swabs in an operating theatre before and after an operation to ensure that none have been left inside the patient, or the series of checks that an aircraft is functioning satisfactorily that airline pilots have to go through before take-off.

Such approaches probably comprise most of the ways in which risk is managed within organisations. However, even if the risk has been correctly assessed (and some of the

uncertainties to do with risk assessment have already been discussed[48]), the existence of these algorithms, or rules, does not always prevent adverse events. These can frequently. be accounted for by human factors operating at the individual level, such as slips, lapses, mistakes, or rule violations (for an overview see Reason (1990a); and by 'latent failures'[49] involving pre-existing conditions which are always present in complex systems[50].

Indirect approaches to risk management - the role of risk governance

The term 'governance' comes from the Greek word meaning 'to steer'. This suggests a more 'hands off' approach to management, encouraging the following of a particular course or route by means of relatively unobtrusive guidance which constantly monitors and regulates progress towards a goal. Governance is very similar to Foucault's core concept of 'governmentality', described by Dean (1999) as:

> *"any more or less calculated and rational activity, undertaken by a multiplicity of authorities and agencies, employing a variety of techniques and forms of knowledge that seek to shape conduct through working through our desires, aspirations, interests and beliefs for definite but shifting ends and with a diverse set of relatively unpredictable consequences, effects and outcomes."* (Dean 1999 p 11)

A more simple definition, which then goes on to offer a precise definition of risk governance, is given in the International Risk Governance Council's (IRGC) introduction to their Risk Governance Framework.

> *"Governance refers to the actions, processes, traditions and institutions by which authority is exercised and decisions are taken and implemented*
>
> *Risk governance deals with the identification, assessment, management and communication of risks in a broad context. It includes the totality of actors, rules, conventions, processes and mechanisms and is concerned with how relevant risk information is collected, analysed and communicated, and how management decisions are taken. It applies the principles of good governance that include transparency, effectiveness and efficiency, accountability, strategic focus, sustainability, equity and fairness, respect for*

[48] See Section 2.3.1
[49] A term first used by Turner (1978) and since elaborated by Reason (1990b, 1997)
[50] For an example of such failures in the healthcare sector see Catchpole et al's (2007) study of latent failures during surgical operations

> *the rule of law and the need for the chosen solution to be politically and legally feasible as well as ethically and publicly acceptable"*
>
> IRCG (2008)

Thus, as Renn and Roco (2006) point out, the concept of risk governance does not just relate to risk management or risk analysis, but comprises a broad picture of risk, including the process of risk-related decision-making involving many different participants and perspectives. Despite its broad remit, however, the objectives of the process are relatively simple and are summed up by Rothstein et al (2006 p 6) as being about "*prioritising activities according to the impact and probability of societal risks, whether for standard-setting or compliance purposes*".

Regulation

If the algorithm may be seen as the tool of direct risk management then the tool utilised by risk governance is regulation. Risk regulation now finds its way into all aspects of public and corporate life. It has come a long way since the early days of safety legislation with its algorithms for action aimed at reducing or preventing harm in relation to specific, discrete hazards.

On the first page of Chapter One of their book "The Government of Risk", Hood et al (2001,2004 p 1) offer two rather different definitions of regulation. The first places regulation firmly with the seat of public political power, seeing it as "*governmental interference with market or social processes*", the second definition, however, is more generic, characterising it as "*attempts to control risk, mainly by setting and enforcing product or behavioural standards*". This latter definition seems more helpful here, since it allows the application of the term more widely, for instance to the internal regulatory systems of organisations These are often undertaken voluntarily, possibly in response to public or consumer pressure for regulation as, for instance, the General Medical Council (GMC) regulates doctors, or cars are produced to an industry standard.

There are three aspects of regulation which are of particular relevance to the theme of this review. The first is the way in which the very process of attempting to manage risk may come to be seen to pose in itself a threat to organisations involved in governance,

should they appear to fail in their task. Hence, to use a previous example, should the GMC seem to be too lenient with medical colleagues who are perceived by the public to be incompetent, the pressure of opinion may lead to the imposition of regulatory sanctions on the organisation itself (as actually happened in 2001 and again in 2006 following the Howard Shipman affair). This issue is addressed in depth in two papers (Rothstein, 2006 and Rothstein et al, 2006) which argue essentially that:

> *"the inevitable difficulty of managing threats to society (societal risks) creates threats to organizations managing those risks (institutional risks). The potential for failure has always been part of governance, but contemporary pressures towards greater coherence, transparency and accountability have amplified institutional risks by exposing the practical limits of governance."* (Rothstein, 2006 p 1)

The second aspect of regulation pertinent to this review is the argument that regulation may lead to unreasonable expectations that it is possible and desirable to manage all risks. Power (2007 p 21) notes that there are concerns about the growth of "*systemically risk averse*" societies and that the growth of dedicated risk regulation agencies will amplify this risk adversity. Indeed, this concern with the development of an over zealous safety culture comes from the very top layers of government. Rothstein (2006) noted that Prime Minister Gordon Brown, while in office, had bemoaned the pressure on decision makers to put a disproportionate effort into trying to eliminate risk, while four years later the last Prime Minister, David Cameron, in a speech to the Policy Exchange think-tank (Cameron, 2009) said that overbearing rules and regulations were ''*a straitjacket on personal initiative and responsibility*'', accusing the previous government of allowing a ''*blanket of bureaucracy, suspicion and fear*'' to descend on the country.

Cameron's remedy for this over-concern with regulation, to pledge more protection for people who acted in good faith and reduction of health and safety responsibilities for small businesses and voluntary organisations, addressed the third issue, what Power (2007) terms "*the choking effect of regulatory bureaucracy*". Too pervasive or draconian regulation may stifle creative responses to perceived risk. For instance, a survey of managers in British industry (Smallman, 2004) found that regulation ranked as third most important threat to the successful achievement of organizational

objectives. Anxiety about regulation may lead to the social amplification (Kasperson *et al*, 1988) of the perception of the risks involved - situations in which fear of the consequences of responding in a non-standard way to a hazard overcomes the perceived risk relating to the hazard itself. Thus, as Rothstein (2006) notes, "*amplified fears of litigation, for example, may be a more important driver of action than actual litigation risks in many fields*". Responding to such concerns, in 2011 the government commissioned an independent review of health and safety legislation (Cm 8219, 2011) to be conducted by Professor Ragnar Löfstedt of Kings College London. Interestingly, Löfstedt concluded that the problem lay "*less with the regulations themselves and more with the way they are interpreted and applied*" (Cm 8219 - Executive Summary), i.e. the perceived risk of being arraigned for non-compliance was tending to amplify the perception of the risk posed by the focal hazard itself.

At a more global level, as already noted, the rise of a more risk averse society led to increasing pressure to assume that unless something could be proved to be safe it should be assumed to be harmful. The precautionary principle, originally a statement of a philosophical approach to the risks consequent upon uncertainty, has become a method by which governments regulate industry. Löfstedt (2003) saw this as a paradigm shift for the regulatory process in general which moved the system from one in which the burden of proof of harmlessness lay with scientific analysis at industry level, to one where decisions about risk not only considered such scientific evidence as was available, but also multiple and qualitatively different risk issues raised by ethical and social concerns (Löfstedt, ibid).

There have been various formulations of the precautionary principle, and there is variation across countries in the degree to which it is used in regulation (Vogel 2001, 2003), with the European Union seen by many as having one of the most restrictive articulations of the policy (Wiener and Rogers, 2002).

> *"The precautionary principle applies where scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen by the EU. ... The precautionary principle may be invoked where urgent measures are needed*

> *in the face of a possible danger to human, animal or plant health, or to protect the environment where scientific data do not permit a complete evaluation of the risk. It may not be used as a pretext for protectionist measures. "*
>
> (European Commission, 2000)

However, the degree to which risk management is actually constrained by such political statements shows considerable variation, and depends on a number of factors including the type of threat under consideration, the degree of harm anticipated and the perception and motivation of the managers themselves (Aven, 2016). Most importantly, while the principle of safety management is that of caution (Aven and Abrahamsen, 2007), its practice owes more to an adjunctive caveat to the principle, that of reducing risk 'as low as reasonably practicable', ALARP, first articulated in the 1960s, (Ale et al, 2015). The big problem with ALARP is the interpretation of what is 'reasonable', which harks back to the concept of cost/benefit analysis and may lead to risk being interpreted in totally monetary terms, begging the question of where and with whom the risk is located (Kelman 1981; Aven and Abrahamsen, 2007; Ale et al, 2015). For instance in the NHS, as will be shown in this thesis, using regulatory tools that use RAG (colour coded) risk ratings to indicate changes in threat levels, in this case to patient safety, may be (or be perceived to be) used in ways which relate more to financial threats to an NHS trust itself than to reducing the threat of harm to patients[51]

2.4 In conclusion – links between multiple hazards and behaviour are still unclear

This literature review has shown that much is now known about how people perceive threats in their environment and how they may behave in response. Nevertheless, it must be concluded that, as Sullivan Wiley and Gianotti (2017) aver, knowledge relating to how individuals react to multiple hazards presenting simultaneously is more difficult to identify. In particular, few studies seem to have addressed the links between perceiving multiple threats, selecting the most salient threat, and translating that selection into behaviour. This is an important omission, since in real life situations it is

[51] For examples and discussion see empirical chapters 5, 6 and 7

rare for people to be faced with only a single threat to consider. Hence, if it is sought to understand people's responses to particular threats (e.g. a perceived risk to patient safety, the subject of this thesis), it must be essential to consider under what circumstances that threat is identified, assessed and chosen for response above all the other, qualitatively different, threats they perceive.

In addition, it will be argued that in looking to understand and manage responses to risk the situational and temporal aspects of risk perception are frequently overlooked. Pidgeon et al (2003) in their review of 15 years of research using the SARF framework[52] identified the importance of considering how the social and historical context may amplify or attenuate how threats are perceived, yet all too often risk assessors, risk managers and politicians act as if responses to threats are discrete and unchanging. The next chapter starts the examination of this issue by reviewing the literature relating to the development of the concept of patient safety.

[52] An approach which *does* explicitly consider the effects of context and time on risk perceptions

Chapter 3: Changing perceptions of risk and safety in healthcare

Chapter 2 was concerned with examining the general literatures on risk perception and decision-making which address the issues affecting the propositions to be addressed in this thesis; that "*a) individuals identify multiple, qualitatively different threats in their environments and b) prioritise the most salient for a behavioural response*", and that "*a) different threats may be more or less salient at any particular time, but that b) salience may vary if circumstances change, altering individuals' responses*". This chapter considers the specific issue of safety in healthcare, setting out the context in which the research was undertaken by examining the literatures on the historical and recent development of the concept of patient safety, and showing how the concept may have been affected by changing perceptions of risk both in relation to healthcare and to other perceived hazards in the environment.

The chapter falls into three main sections. The first section addresses the development of 'patient safety' as a way of conceptualising risk in healthcare. It starts with a brief consideration of the concept of safety and an explanation of how 'patient safety' is defined in this research. The section then looks at the historical development of perceptions of risk in healthcare and the increasing recognition of patient safety as an important global issue. Section 2 begins by describing the institutionalisation of 'patient safety' at UK national policy level in 2001 and goes on to examine the subsequent development of various infrastructures and regulations and the ways in which these have been developed and modified over time, often in response to changing perceptions of the salience of the issue following newly identified threats in the environment. Section 3 looks back at the two previous sections and considers to what extent the development of the 'patient safety' issue can be said to offer examples which illustrate the two propositions described above.

In addition to examining the development of the concept of patient safety, this chapter seeks to provide the necessary background information to support the argument to be made in Chapters 5, 6 and 7 of this thesis which report the empirical

data collected in this research. These will: examine the multiple perceptions of risk which may affect decision-making in healthcare and how hazards to patient safety are perceived and addressed at every level (Chapter 5); examine the factors which determine how staff prioritise the threats they perceive in order to select a focal hazard to which to respond (Chapter 6); and (Chapter 7) describe how an individual's original perceptions of the salience of the risk posed by a threat may be affected by changed or contested perceptions of risk, sometimes resulting in different behavioural choices.

3.1 "First do no harm": the development of patient safety as an issue in healthcare[53]

'Patient Safety' is now considered a specific healthcare discipline with its own literature (Palmieri et al, 2008), but it is a relatively new concept in healthcare. Although its origins can be found in the long held belief that the outcomes of medical treatment should not be other than beneficial, it was only towards the end of the last century that the medical establishment and the public at large began to recognise and accept that mistakes not only could and did happen, but were damaging large numbers of patients treated within healthcare systems. Indeed full recognition of this uncomfortable truth and the institutionalisation of 'patient safety' as a key tenet of healthcare policy happened little more than a decade ago. While this process of recognition occurred more or less simultaneously throughout the developed world, the focus here is on the progress of the issue in the UK National Health Service (NHS); on the individuals and government bodies involved and the development of organisational structures and mechanisms concerned with improving patient safety during the tenure of the Labour Government (1997-2010); and the alterations to those systems instituted by the Conservative/Liberal Democrat Coalition (2010-2015) and the current Conservative administration (2015-).

[53] Though the narrative is my own, much of the factual content of this section was informed by Charles Vincent's book "Patient Safety" (Vincent 2006, 2010)

3.1.1 Defining 'patient safety'

As a concept, 'safety' is theoretically achievable, and may be seen as the condition of being protected from danger, risk or injury (Oxford Dictionary). Focusing specifically on risk in healthcare, the World Health Organisation (WHO) patient safety programme website also offers a definition which implies that safety is attainable "*Patient safety is the absence of preventable harm to a patient during the process of health care*".

In practical terms, however, safety can never be an absolute, indeed Aron Wildavsky (1930-1993) described the search for safety as a "*balancing act*"

> *"For the most part, safety and danger coexist in the same objects and practices. Under the right (or wrong) conditions everything we need for life can also maim or kill: water can drown, food can poison, air can choke. … The trick is to discover not how to avoid risk, for this is impossible, but how to use risk to get more of the good and less of the bad. The search for safety is a balancing act . For if the axiom of connectedness holds, there is no choice that results in no harm."* (Wildavsky 1988 p 5)

For this reason, a second definition of 'safety', first coined by Bradley et al (2016), "*the control of recognized hazards to achieve an acceptable level of risk*", may be more useful, and may be especially apposite in relation to healthcare. Vincent sees healthcare as "*an inherently risky enterprise*" and offers a definition focused specifically on patients and differentiating between safe care and other aspects of good quality practice:

> *"The avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the process of healthcare"* (Vincent 2006 p 14)

It is this definition of patient safety which is adopted for the purpose of this thesis.

3.1.2 The 'discovery' of patient safety

Keeping patients from harm as well as attempting to cure what is wrong with them has been an important aspect of healthcare since the Hippocratic Oath was devised by Greek physicians in the 5th Century BC. Nonetheless, difficulties in achieving this end because of ignorance, accident, or sometimes even negligence were frequently noted throughout the succeeding centuries. Prior to the end of the 19th century the main

risks to patients from medical intervention came from lack of knowledge about disease processes and how the body reacted to trauma of various kinds. This meant that such medical treatments as were available were as likely to kill as cure, while survival following surgery or childbirth was perceived by most to be in the hands of a capricious Fate. Early pioneers of patient safety such as, for instance, Ignaz Semmelweiss (1818-1865), Florence Nightingale (1820-1910) and Joseph Lister (1827-1912), who all recognised the contribution of hospital acquired infection to mortality and morbidity among patients and tried hard to change the flawed systems which allowed it to flourish, were frequently vilified and ignored by their contemporaries.

Changing perceptions of risk in healthcare

From the beginning of the 20th century, however, as increasing understanding of causality of disease and advances in treatment continued to improve outcomes, the issue of the persistent prevalence of potentially avoidable mishaps and mistakes (frequently termed 'adverse events' or 'serious untoward incidents - SUIs') became more prominent. Patients, once only too glad to find the hazard to life and limb from illness reduced by modern treatments, were now beginning to question the old adage of "*doctor knows best*" and to consider the quality of the care they were receiving (Katz, 1994; Charles et al*,* 1997).

In the US, in particular, the 'compensation culture' (Levin, 1993) had begun to take hold, as people tried to recover the costs of failed treatments through litigation. In the UK, initial public gratitude at being spared the risk of incurring massive financial costs in search of cures by the advent of the NHS in 1948, began to be replaced by a sense of being entitled to be made well. When this was not the case, UK patients also began to complain, with claims for compensation over perceived failures in treatment rising rapidly during the 1960s and 1970s (Vincent, 2006 p 15). Payments to patients by the Medical Defence Union (established in 1885 to deal with claims against doctors) escalated rapidly during this period. From a cumulative total paid out over its first 75 years of £1m. It only took another 28 years (1960-1988) until it paid out its first single claim of over £1 million (MDU, 2015), evidence that public perceptions of risk in relation to healthcare had begun to change.

An increasing medical interest in healthcare quality

Many clinicians were also becoming more concerned about standards of healthcare delivery, not least because claims for negligence resulted in rising costs for personal professional insurance (Brennan et al, 1991). A seminal paper by Avedis Donabedian, arguably "*the first great theorist of healthcare quality*" (Vincent, 2006), cites numerous, mostly American, papers addressing quality issues published during the 1950s and 60s (Donabedian, 1968), and 'clinical audit', a method of reviewing the quality of healthcare practice originating in the USA, became ubiquitous during the 1970s and 80s.

However, the emphasis on quality improvement did not necessarily equate to specifically addressing risks to patients or the problem of adverse events. This was partly because the process of audit necessarily focuses on discrete and selected incidents. It is retrospective, rather than prospective; can give no idea of how often similar incidents occur or how many patients have been affected; and is internal to the organisation concerned (Shaw 1980). Thus learning was normally limited to the small number of people involved in the audit and could have little effect on changing practice more generally or on modifying faults in systems. In addition, quality is difficult to measure, as many clinicians were not slow to point out (see for instance Black, 1998; Goodman, 1988; Smith and Harris, 1999) and the rise of widespread interest in the concepts of risk and safety was still some way in the future. As Vincent (2006 p22) notes, although it now seems obvious that safety is an essential part of quality, at that time "*the language of error and harm had not entered healthcare discourse*".

A notable exception to this generalisation was the specialty of anaesthesiology, members of which were particularly early in addressing the issue of perioperative adverse events. The USA based Anesthesia Patient Safety Foundation[54] was set up in 1985. It was "*the first independent multi-disciplinary organization (practitioners,*

[54] note the first official use of the terminology of patient safety

equipment and drug manufacturers, and many related professionals) created expressly to help avoid preventable adverse clinical outcomes, especially those related to human error" (Source – APSF website, 2016).

A wake-up call: academics, the public and politicians become sensitised to patient safety

Although papers reporting and examining adverse events started to appear from the 1950s onwards (see citations in Brennan et al*,* 1991), these were mainly in the medical literature and it took longer for the issue of patient safety to become of interest to the academic community at large. It was another three decades before an increasing general and academic interest in the concept of risk as a subject for research began to impact on issues in healthcare. Indeed, a 1989 article on research into medical accidents was highly critical of the lack of a "*coherent body*" of research in this area, commenting that "*the most striking finding is the paucity of the literature*" (Vincent, 1989).

This situation was to change at the beginning of the 1990s, with the publication of two papers (Brennan et al*,* 1991, Leape et al*,* 1991) discussing the results of a large[55] and influential American study of adverse events in hospitals (The Harvard Medical Practice Study). Interestingly, from the point of view of this thesis, this study was not undertaken because of anxieties about the hazards posed to patients from accidents or negligence during treatment, but to try to determine the potential liability to healthcare providers of malpractice claims being brought against them (Brennan et al 1991). This suggests that the focal (most salient) hazard in relation to adverse events for those in healthcare management at that time was the risk of litigation, not the risk of causing harm to patients. However, the empirical information collected about the incidence and prevalence of "*poor quality care and iatrogenic injury*" demonstrated that huge numbers of patients (4% of all admissions) were suffering some sort of avoidable harm (Brennan et al 1991, Leape et al 1991). Furthermore, the study found

[55] 30,121 cases were sampled

that many adverse events were the result of what the authors termed "*error*" or even "*negligence*" by those carrying out procedures rather than the unexpected effects of appropriately prescribed medication or equipment failure.

This disturbing finding prompted an increasing number of medical studies of adverse events, involving a wider range of disciplines than previously (see for instance Leape, 1994; Bognor, 1994; Kahn, 1995; O'Hare et al, 1995); while in Australia researchers replicated the Harvard study, using approximately half the sample size, and came up with similar findings (Wilson et al*,* 1995). All the findings also highlighted the role of human agency, attracting the interest of sociologists, particularly those involved in the study and prevention of accidents who, up till then, had focused mainly on trying to reduce "*the human contribution to the conspicuously catastrophic breakdown of high hazard enterprises such as air, sea and road transport: nuclear power generation; chemical process plants; and the like*" (Reason, 1995 p80).

Not only were researchers in a range of academic disciplines becoming aware of the issue of patient safety[56], but the public at large was also becoming alerted, often through the media, to the number and serious nature of adverse events in healthcare. In the UK, as in other developed healthcare systems, especially the USA, litigation costs were continuing to escalate. Additionally, scandals, and in particular a public outcry over high death rates for paediatric surgery at Bristol Royal Infirmary (Kennedy, 2001; Walshe and Offen, 2001), boosted calls for action. In consequence, awareness of the issue at governmental level was also rising rapidly.

By the end of the 1990s, it was no longer possible to ignore the accumulated evidence, and it was widely acknowledged that systems for keeping patients safe from harm needed to be an integral part of the quality agenda. In 1997 the American Medical Association set up a National Patient Safety Foundation (modelled on the existing foundation for patient safety in anaesthetics) to try to reduce the number of mistakes

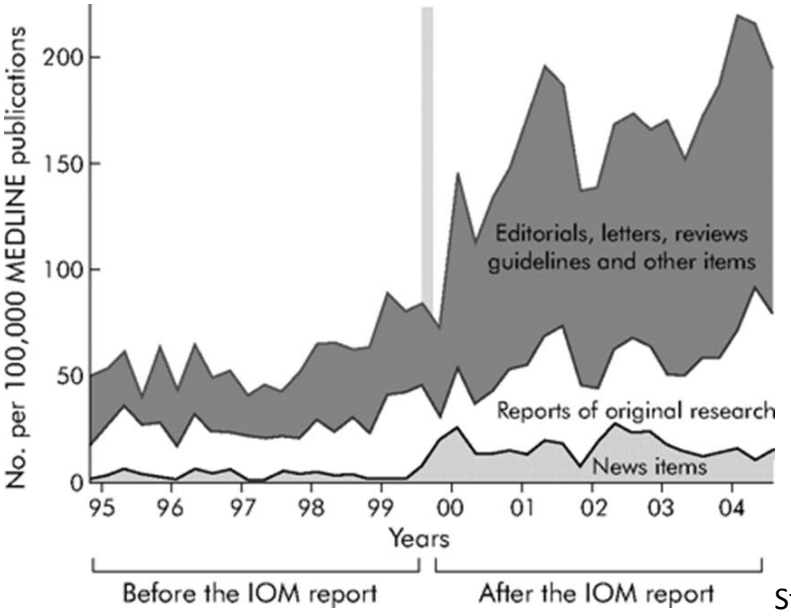
[56] In March 2005, the emergence of patient safety as a new academic healthcare discipline was marked by the inaugural issue of the Journal of Patient Safety "*dedicated to presenting research advances and field applications in every area of patient safety*".

happening in medicine, and in November 1999 a major report from the US Institute of Medicine - "*To Err is Human*" (Kohn et al*,* 1999) - called for action on patient safety. This report had a huge impact on the public and politicians. This was not so much for its detailed content, which focused on the reasons for the occurrence of errors and the systemic changes which needed to be made to ameliorate them, but as a consequence of the headline-grabbing estimate that they were contributing to the deaths of between 44,000 and 98,000 people annually in US hospitals (Leape, 2000).

What mattered was that the *perception of the importance* of adverse events had now fundamentally changed. It did not make any difference that the totals in the report were estimates, or that the data they were based on (mortality statistics) could be questioned, or that they were reflecting a situation which had been known about since publication of the Harvard Study eight years previously (Brennan et al, 1991).

The following diagram, taken from Stelfox et al (2006), shows the scale of the increase of patient safety articles following publication of *"To err is human".* Patient safety had become big news.

Figure 3.1 Articles on patient safety before and after November 1999



Stelfox et al (2006)

3.1.3 Patient safety becomes institutionalised in the UK

In May 1997, two years before patient safety moved to the top of the healthcare agenda in the United States, a new Labour government came to power in the UK. Elected with a substantial majority, the party believed that one of the main reasons for their success was that the electorate was concerned that "*the NHS was failing them and their families*" (Blair 1997) and had promised reform. In December 1997, the new government's first Health White Paper - "*The New NHS: Modern Dependable*" - was published, a scant seven months into the new administration (Cm 3807, 1997). While there were no explicit references to patient safety or adverse events within the document, improving the quality of care was a major theme and it noted that:

> *"past performance on quality has been variable and the health service has sometimes been slow to detect and act decisively on serious lapses"* (Cm 3807, 1997 p 59)

There were also references to remedies for "*serious or persistent problems*" and "*strengthening existing systems for professional self-regulation*".

Another key theme in the White Paper, also indirectly signalling a heightened perception of the issue of risk in healthcare, was that of 'clinical governance'. A new concept in healthcare, this extended corporate governance from financial to clinical matters and implied the necessity for surveillance if healthcare standards were to be met. While some practitioners felt this was hardly a radically new idea, calling it a "*new label for old ingredients*" (Smith and Harris, 1999) and a "*commonsense message that we must all strive after quality in practising medicine*" (Goodman, 1998), clinical governance was hailed by its supporters as "*one of the most fundamental and radical of the government's proposals*." (Black, 1998).

If the White Paper only offered veiled allusions to an awareness of the safety issue, other actions of the new Labour Government spoke more directly of its determination to address patient safety. Hard on the heels of the publication, in July 1998, of the General Medical Council's investigation into the paediatric deaths at Bristol, came the announcement of a public enquiry into what had occurred. Six months later, in February 1999, an Expert Committee was established with the specific remit of

examining how able the NHS was to identify and learn from its mistakes (Department of Health 2000).

A champion for patient safety

The Expert Committee was chaired by Liam Donaldson, from August 1998 the new Labour Government's Chief Medical Officer and credited with the invention of the concept of clinical governance (Bower, 1998). Previously Director of Public Health for two Regional Health Authorities and a Regional Director for the National Health Service Executive, Donaldson's interest in patient safety stemmed from dealing with doctors who failed to provide adequate care for patients, and in 1994 he had published an empirical paper on the subject (Donaldson, 1994). Although the term 'patient safety' was not used within that document, it showed that irresponsible behaviour, lack of commitment and poorly exercised clinical skills or inadequate medical knowledge comprised the three largest categories of problems impacting patient care.

In a journal editorial in February 1998, shortly after publication of the White Paper, Donaldson had set out his vision of the ways in which clinical governance would contribute to quality improvement in the NHS (Donaldson, 1998a). In particular, flagging his support for the developing discipline of Evidence Based Medicine with its emphasis on the importance of acquiring factual evidence about serious adverse incidents. He also demonstrated his recognition of the role played by perception of risk in maintaining public confidence in the safety of the care they receive, "*the enormously negative public impact of recurrences of similar failures, ... (gives) an impression that health services are unable to correct problems reliably and conveying a sense of history repeating itself*" (Donaldson, 1998 p73)

This paper placed Donaldson firmly in the tradition of the patient safety pioneers of the past – Semmelweiss, Nightingale and Lister – all of whom had recognised that achieving good quality care required the development of healthcare systems which supported safe practices. The difference between Donaldson and those early champions of the issue was that, unlike them, he was pushing on an open door. Risk perceptions had changed and the recommendations in a further paper (Scally and

Donaldson, 1998), published in the BMJ on the 4th July 1998 were faithfully echoed later that month in the Department of Health's consultation document "*A First Class Service: Quality in the new NHS*" (DoH 1998).

The Select Committee on Health – June 1999

While it is evident that Donaldson was aware that public risk perception did not necessarily reflect the true state of affairs and could not be reliably be used as an indicator of what needed to be done to improve patient safety, this did not prevent the government reacting to media criticism of the health service. In June 1999, while the expert committee was still in progress, the House of Commons Select Committee on Health opened a new inquiry into adverse clinical incidents and outcomes in medical care.

The minutes of the Health Select Committee 15th July 1999 (Health Select Committee Report, October 1999) show that Donaldson, called to give evidence, attempted to draw attention to the wider picture, making distinction between the clinical complaints procedure and three other aspects of the problem: the ability of the Health Service to detect untoward incidents; the question of poor practitioner performance; and the need to improve the quality of data available to measure service quality. Nevertheless, Donaldson's intervention seemed to have little effect on the committee's deliberations. Its report was wholly concerned with making recommendations about ways of increasing consumer satisfaction following an adverse event and did not in any way address the possibility of keeping patients safe in the first place (Health Select Committee Report, ibid).

"An Organisation with a Memory": the expert committee reports

Donaldson's broader vision of what needed to be accomplished if safety issues were to be properly addressed by the NHS was, however, shared by the expert committee he chaired. This committee, "Learning From Evidence", was particularly notable for its inclusion of a substantial number of people from outside healthcare with expertise on organisational failure, incidents and disasters. Amongst these were key figures in the

fields of risk and safety such as James Reason, Brian Toft and Charles Vincent, who had previously published an article in the British Medical Journal (Vincent, 1997) which explicitly linked quality and safety.

The committee's report "*An organisation with a memory*" was published by the government in June the following year (DoH, 2000) and focused strongly on the need to enable lessons to be learned from failure by all those working in the NHS, not just a few of those most immediately concerned with an adverse event. It identified four key areas to be addressed:

- *unified mechanisms for reporting and analysis when things go wrong;*
- *a more open culture, in which errors or service failures can be reported and discussed;*
- *mechanisms for ensuring that, where lessons are identified, the necessary changes are put into practice;*
- *a much wider appreciation of the value of the system approach in preventing, analysing and learning from errors.*

(Department of Health, 2000)

The report, endorsed by the Minister of Health, recommended the setting up of a single unified system for collecting analysing and disseminating data on adverse events and near misses. This was essentially the same idea as was already being promoted in America, as a result of the Institute of Medicine report "*To err is human*" (Kohn et al, 1999). Both reports proposed that reporting of adverse events should be made mandatory, but although the US report had the backing of President Clinton, dissent over whether reporting should be voluntary or mandatory delayed the development of a federal database until 2006. Only in the UK did the government have legislative power to introduce such a system. Patient safety was now firmly established on the government agenda as an important aspect of healthcare policy, and with the creation of the National Patient Safety Agency as an arm of the Department of Health, the UK suddenly found itself a front runner[57] in the field.

[57] Even WHO did not establish its Patient Safety programme until 2004

3.2 Patient safety in the 21st century

This section examines some major milestones concerning patient safety in the UK during the 15 years since Donaldson's seminal report (DoH, 2000). It considers first the New Labour government response at institutional level to this and other rising concerns about quality and safety in healthcare and speculates about the multiple perceptions of risk which motivated the setting up of five new national agencies to oversee and regulate NHS establishments. In particular, it looks in some detail at the main government response to the recommendations in "*An organisation with a memory*"(ibid, 2000), the establishment of the National Patient Safety Agency, with its mandate to develop a system for the collection of data on the incidence of adverse events in healthcare organisations. The section then goes on to describe the ensuing struggle over the next decade to make and maintain progress on patient safety issues in the face of a number of emerging healthcare scandals and increasing financial problems in the NHS.

3.2.1 Five new regulatory agencies

As part of the New Labour government's commitment to improving quality in the NHS, five new regulatory agencies were set up between 1999 and 2001. These were: the National Institute for Clinical Excellence (NICE) (April 1999), giving guidance on best practice; the Commission for Health Improvement (November 1999), focusing on meeting quality standards; the Modernisation Agency (April 2001), for planning service improvements; the National Clinical Assessment Authority (April 2001), to assist health authorities and trusts in dealing with performance issues relating to individual doctors; and finally, in July 2001, the National Patient Safety Agency, tasked with collecting and analysing information on adverse events from healthcare organisations and giving feedback on ways to improve.

Walshe (2002) makes a number of key points in relation to these five new agencies, two of which are of particular relevance here. First, the agencies all related to clinical practice, as distinct from previous regulatory agencies which were more focused on

administrative and managerial issues, and secondly the five agencies represented a "*significant strengthening of central government's control of the NHS*".

Can the establishment of these agencies be seen specifically as a governmental response to increasing perceptions of risk to patients? It is clear that while all addressed elements of the patient safety agenda, most did so indirectly, through an emphasis on improving quality of care. Only one, the National Patient Safety Agency, was focused specifically on identifying and preventing adverse events[58], suggesting that safety *per se* was only one among a number of other competing concerns about hazards faced by the NHS. For instance, while the National Institute for Clinical Excellence (NICE) proclaimed its remit to be promoting "best practice", five years on its "*gauleiters*" (Smith, 2004), professors of clinical pharmacology and economics, were explicitly acknowledging the tensions involved in balancing the hazard of giving less than optimal care to patients against the threat of overspending, *" in most instances NICE is confronted with a clinical management strategy that is better than current standard practice but which costs more. "*(Rawlins and Culyer, 2004 p 224)

In another example, the Commission for Health Improvement (CHI) was established to assess how well hospitals were performing. The actual legislation related to monitoring the quality of their governance systems and "*the assumption that good clinical governance could be equated with good performance rested on an act of faith*" (Day and Klein, 2004 p1). However, while ministers assumed that the new organisation would naturally address service quality and saw CHI as an inspectorate, the CHI took a softer approach and hoped to highlight where the NHS was working well in addition to identifying areas needing improvement (CHI web site 2003).

3.2.2 The National Patient Safety Agency

Based on the recommendations of "*An organisation with a memory*" (DoH, 2000) and its implementation document "*Building a safer NHS for patients*" (DoH, 2001) which

[58] although another, the National Clinical Assessment Authority, was established to help deal with concerns about the "*performance*" of individual doctors, which might or might not be related to unsafe clinical practice

offered "*A blueprint for the new national system for learning from adverse events and near misses*", the National Patient Safety Agency (NPSA) was established in 2001 with a budget of around £12 million. Its overall aim was "*to improve patient safety and promote a more open and fair culture in which risk is proactively assessed and patient safety is a high priority for everyone.*" (NPSA, 2004)

Cultural change was to be promoted through leading national initiatives to improve patient safety. Key components of this strategy were:

- the deployment of Patient Safety Managers in Strategic Health Authorities;
- publication of an evidence-based good practice guide;
- the creation of formats for "*fast and effective*" sharing of patient safety information;
- events such as conferences on patient safety;
- a web based Patient Safety Portal enabling feedback of data, access to news on patient safety and online learning and interactive tools to promote best practice.

(information sourced and adapted from NPSA, 2004)

The NPSA's other main task was to establish a database, the National Reporting and Learning System (NRLS) to collect confidential reports of "*patient safety incidents*" (*aka* adverse events) from healthcare staff across England and Wales.

The steps to be taken to set up the linked components of the new reporting system were described as follows:

- establishing agreed definitions of adverse events and near misses
- formalising a minimum data set
- building expertise in root cause analysis
- including information from other reporting systems
- promoting a culture of reporting and patient safety

(adapted from DoH, 2001)

This national data system was optimistically forecast to be up and running by December 2002 but, as with many IT projects within the NHS (see for instance Ferlie et al 2013 Chap 8), it took longer to establish than expected. Part of the problem, as noted in '*An organisation with a memory*' (DoH 2000) was that there was no standardised reporting system, and no systematic reporting of 'near misses', important as early warning of serious problems. While there was already a statutory

requirement for trusts to report serious accidents to the Health and Safety Executive[59], as well as many voluntary reporting systems for specific types of patient safety incidents, there were no facilities for routinely collecting the kind of data about every adverse incident required for the NRLS, which now defined adverse events as "*any unintended or unexpected incident that **could have or did** lead to harm for one or more patients receiving NHS-funded healthcare*" (NRLS, 2004 – my emphasis). In addition, risk management departments in local healthcare trusts, established following the rise in demand for accountability, were focused on responding to litigation and claims for compensation (Feather and Morgan, 1991). Thus each trust needed to set up an entirely new system, suitable for recording not only all (rather than just serious) patient safety incidents, but also, (importantly for the data collection regarding adverse events reported in this thesis - see Chapter 3), near misses.

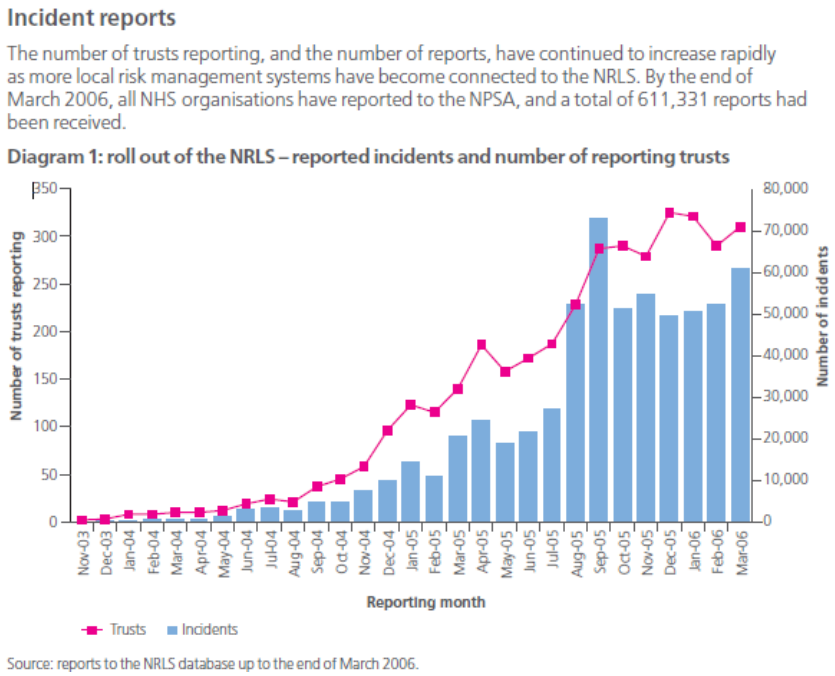
There was recognition that creating a climate in which staff felt it to be safe to report adverse events would be essential to the effectiveness of the new system. Holding up the process of error disclosure in the aviation industry as an example (see for instance O'Leary and Chapell, 1996; Toft, 1992), it promised the creation of a "confidential" reporting channel until staff should feel assured that they need not fear risk of reprisal (DoH, 2001 p27).

Following extensive piloting and revision, the NLRS was finally rolled out across the NHS in 2004, and the NPSA's first report on the data collected was published in December of that year. By 2005 the National Audit Office could report that "*all trusts have established effective reporting systems*", though some had still not submitted any data and under-reporting was a problem (National Audit Office, 2005). However, between 2005 and 2010 the National Reporting and Learning System became established and embedded as part of NHS organisations' risk management systems.

[59] under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995

Quarterly statistics were published by the NPSA from 2006 (Fig 3.2)

Figure 3.2 First NRLS Quarterly Data Summary – Summer 2006



Although the numbers of events reported seemed horrifying at first, most reported incidents were trivial (69%), with relatively few instances of death or serious injury (1%) and, after the first few reports, the quarterly figures, although they apparently escalated over time[60] attracted little media attention, (perhaps providing support for SARF (Kasperson et al, 1988) that perceptions of risk may gradually attenuate as people and/or institutions (Rothstein, 2003) become desensitised and thus less attentive to signals which have previously triggered a reaction).

A relative lack of media interest in the statistics did not, however, mean that the NPSA had an easy ride. First there was the 2005 National Audit Office (NAO) report, "A Safer Place for Patients" which was scathing about the length of time it had taken to establish an effective reporting system and dubious about the amount of learning which was occurring as a result of data collected.

[60] Probably due mainly to an increase in numbers of incidents being reported, rather than an absolute increase in adverse events

Some of this tardiness might be attributed to the organisational disruption consequent on the NPSA having had (in April 2005) to incorporate a number of other functions and responsibilities as a result of the Secretary of Health's review of the Department's Arms Length Bodies[61]. Nevertheless with Donaldson as Chief Medical Officer championing the issue, patient safety remained a major preoccupation at the Department of Health and the NAO report was swiftly followed by another, "Safety First", this time reporting a patient safety review undertaken by a team headed by Donaldson himself (DoH, 2006). This report reiterated the NAO's findings about the NRLS with regard to an apparent lack of improvement in awareness of patient safety issues at grassroots level despite the high volume of incident reports collected. It also delivered a sharp rap over the knuckles to the NPSA itself saying that it was not making enough of its opportunities either to derive patterns, trends and underlying causes from the data or to work with other agencies involved in patient safety (ibid, 2006).

3.2.3 More concerns for patient safety

In contrast to the optimism about tackling patient safety which characterised the beginning of the first decade of the 21st century, by the late 2000's the government was becoming increasingly concerned about continuing reports of patient safety scandals, despite the various measures taken to address the issue.

The Healthcare Commission investigations

Aside from the critical reviews (National Audit Office, 2005; DoH, 2006) on the progress of the NPSA discussed in the previous section, the Healthcare Commission (which replaced the Care Quality Commission in 2004) had carried out and reported on thirteen full scale investigations of serious failures in healthcare provision in the first three years of its existence (Commission for Healthcare Audit and Inspection 2006, 2008)

[61] The Department of Health's *Arm's Length Bodies Review* led to the NPSA assuming responsibility for: the Central Office for Research Ethics Committees (COREC); the National Clinical Assessment Service (formerly the National Clinical Assessment Authority); safety aspects of hospital design, cleanliness and food; and management of contracts for three confidential enquiries (NPSA 2005)

The Healthcare Commission[62] officially described its role as that of promoting "*improvements in the quality of healthcare and public health in England and Wales*" (Commission for Healthcare Audit and Inspection, 2008). Its work was mainly to investigate allegations of serious failings in healthcare provision, especially in relation to patient safety. The information came from many different sources:

> *"the public, the police, journalists, solicitors, MPs, patient or carer support groups, and sometimes direct from the organisations involved. A significant number of requests are made by NHS staff, many of whom have tried unsuccessfully to address their concerns internally"* (Commission for Healthcare Audit and Inspection 2008)

There was a 'staged process' for considering allegations. These ranged from: initial screening and selection of those considered to require further scrutiny; through analysis of available evidence and, if appropriate, formal recommendations for improvement followed by monitoring of progress[63]; to a full scale investigation of the most serious cases.

As is evident from, "*Learning from Investigations*" its report on the 13 major investigations undertaken since its inception (Commission for Healthcare Audit and Inspection 2008), the Commission, as well as being very aware of multiple threats in its own environment and the possibility of decision-making being unduly influenced by them, also perceived the importance of trying to avoid their investigations posing a threat to others:

> *"Despite the often intense interest shown by the media, we always seek to be measured in any criticism we make. We are very mindful of the challenges faced by staff, both executives and those on the front line, and of the discomfort that an investigation causes to people who are invariably well intentioned".* (Commission for Healthcare Audit and Inspection, 2008)

[62] Note the more 'cuddly' version of its official title "Commission for Healthcare Audit and Inspection", possibly intended to diminish anxiety amongst those it was investigating
[63] Around 80 per year, 1 in 6 of those selected for scrutiny

The Mid Staffordshire scandal

While all the investigations of serious failures in healthcare provision carried out in the first three years of the Healthcare Commission's existence hit the headlines at the time of publication, none captured the sustained attention of both the public and government in the same way as did the revelations about the state of affairs at Stafford Hospital, run by Mid-Staffordshire Hospital Foundation Trust.

Threats to patient safety from services provided by Stafford Hospital had been identified on a number of occasions since 2002 (Commission for Healthcare Audit and Inspection 2009 p17), however the major investigation into its patient safety record began in 2008 after the Healthcare Commission (later in that year to be incorporated, along with Commission for Social Care Inspection and the Mental Health Act Commission, into a new statutory body, the Care Quality Commission) was alerted to statistics showing higher than average mortality rates in Stafford Hospital's A&E department. That investigation uncovered:

> *"numerous, wide-ranging and serious findings about the trust which … we consider amount to significant failings in the provision of emergency healthcare and in the leadership and management of the trust"*
> (Commission for Healthcare Audit and Inspection 2009- Investigation into Mid Staffordshire NHS Foundation Trust p 12)

The 2008 Healthcare Commission investigation became an even more high profile issue because of the involvement of a highly vocal relatives action group, '*Cure the NHS*', set up by the daughter of a patient who had died at the hospital in December 2007. Not satisfied with the two internal inquiries (Thomé, 2009; Alberti, 2009) which followed publication of the Healthcare Commission report, as well as internal reviews of other statutory organisations, such as Monitor, involved in overseeing performance across the NHS (e.g. KPMG, 2009), this group continued to lobby relentlessly for a public enquiry, ensuring continuing media coverage and hence that public perceptions of threats to patient safety were not allowed to attenuate.

The Select Committee on Patient Safety

In 2008, the mounting evidence that, despite the systems put in place following publication of "*An organisation with a memory*" (DoH, 2000), all was not well in the area of patient safety prompted a Government investigation through the House of Commons Select Committee on Health into patient safety in general and the extent to which Government policy to date had been able to influence patient outcomes.

The Committee spent eight sessions, from October 2008 to June 2009, taking oral evidence from 46 key witnesses. It also called for written evidence and received 129 replies from statutory and non-statutory groups and individuals concerned in some way with patient safety, including a highly detailed and lengthy submission from '*Cure the NHS*'. In addition, the Committee had access to the findings of the 2005 National Audit Office report, "Safety First" (DoH, 2006), two reports from an extended review of the NHS carried out by Lord Darzi (DoH 2007, 2008) in which he stressed the importance of safe care in the NHS, the reports on the Healthcare Commission investigations carried out since its inception in 2004, including its most recent on Mid-Staffordshire Hospital Foundation Trust, and the two other internal reports (Thomé, 2009; Alberti, 2009) concerning Mid-Staffordshire.

In the introduction to its findings, published in June 2009 (House of Commons Health Committee, 2009a), the Committee acknowledged its disappointment that putting patient safety high on the policy agenda had not prevented some patients suffering avoidable harm.

> *"there have continued to be cases of appalling care … These cases are unlikely to be typical of today's NHS as a whole, but they are, nonetheless, deeply dismaying—especially after nearly a decade of policy focus on patient safety. … Against this background it must be asked how far the Government's policy has succeeded in reducing harm to patients and what more needs to be done"* (House of Commons Health Committee, 2009a p 9-10)

The findings were unequivocal, there had been "*insufficient progress in making services safer*" and "*significant deficiencies*" in current government policy needed to be addressed. The Committee were clearly shocked by the realisation that with all the

systems the government had put in place since 2000 to restore quality and safety to the NHS, none had prevented some glaring failures in patient care. Perhaps most worryingly of all, the Mid Staffordshire scandal had shown that patient safety had not only been compromised through mistakes in procedures and by people doing unsafe things, but by people simply not doing what they knew they were supposed to do. In other words, omission of protective action, whether through force of circumstance or deliberate choice, had been as, if not more, important than acts of commission in compromising patient safety.

The first and second Francis Inquiries

In the wake of the Select Committee's scathing report and harassed by the media-exposure given to '*Cure the NHS*' which continued to call for a public enquiry and was now threatening legal action, the government decided to institute a further inquiry into the Mid-Staffordshire issue by Robert Francis QC, a barrister with a previous track record in investigating healthcare scandals[64]. This was, however, to be an internal enquiry, not the public inquiry being demanded by '*Cure the NHS*'. The written Ministerial Statement announcing the inquiry suggests this was intended, as much as anything, as a sop to those involved in the pressure group

> *"I do not believe it is necessary for this to be a full public inquiry, given the thoroughness of the reports already produced ...This inquiry's focus will be on ensuring that patients or their families have an opportunity to raise their concerns."* (Secretary of State for Health -Hansard July 21st 2010)

The report of the "*Independent Inquiry into care provided by Mid Staffordshire NHS Foundation Trust January 2005 – March 2009*" (DoH, 2010), was published in June 2010. It gave a further airing and increased prominence to the failings at Mid-Staffordshire, but by no means satisfied the concerns of those involved with '*Cure the NHS*':

[64] the Alder Hey organs scandal at Alder Hey Children's Hospital in Liverpool and the Bristol heart scandal at Bristol Royal Infirmary. Reports published in 2001

> *"Cure the NHS … wanted more than anything to hear from the regulators such as the GMC, NMC and the PHSO among many others from the wider NHS. They felt that examining the hospital again was not needed and they called the inquiry the "secret inquiry" as nobody knew who had given evidence and who had said what"* Cure the NHS Website (http://www.curethenhs.co.uk)

Interestingly, there are indications that Robert Francis himself was not unsympathetic to these demands. A letter from the Secretary of Health dated September 2009[65], records the outcome of a conversation between himself and Francis in which both the enquiry's legal status and scope had clearly been subjected to question. Francis' concerns appear to have been: 1) that, as he noted in the final report, "*disappointingly few members of staff came forward to the Inquiry with their experiences*" and he did not have the authority to require their input; and 2) that his initial findings pointed to the need to investigate external regulatory systems as well as those internal to the hospital itself. The Secretary of Health's response to both these issues was that the *status quo* should be maintained, citing 1) the belief that staff should not be forced to contribute against their wishes "*we will move on more easily in a spirit of co-operation*" and 2) that the purpose of the enquiry was not to look at "*wider systems*" but, in essence, "*to provide the opportunity for patients or their families to air their experiences*".

A new administration looks at Patient Safety

As Black and Mays (2013) point out, it seems unlikely that the Labour government would have acceded to requests to expand Francis' original remit and/or institute a public enquiry. However, publication of Francis' final report came only a month later than the May 2010 general election, bringing a new Conservative/Liberal Democrat coalition into power.

The new government, keen to demonstrate their commitment to improving the NHS, produced a new Health White Paper instituting many far-reaching structural changes within two months of assuming office (Cm 7881, July 2010). The changes with most

[65] Reproduced in Appendix 2 to the report of the internal enquiry (DoH 2010 p 424)

impact on patient safety included: the closure of the National Patient Safety Agency, with its functions subsumed into a new NHS Commissioning Board, later (2013) to become the Non Departmental Public Body NHS England; strengthening the role of the Care Quality Commission; and extending the regulatory role of Monitor to cover all trusts and healthcare providers. In addition, to the delight of '*Cure the NHS*', the new Coalition government agreed to hold the public enquiry into the failings at Mid-Staffordshire so long denied them by the previous Labour government.

The Francis Public Inquiry Report, published in February 2013, ran to three volumes and made 290 recommendations, amounting to little less than a root and branch transformation of the NHS, its systems and culture (CM 8576 - March 2013). Although it has been criticised for an absence of specialist expertise within the inquiry team (Black and Mays, 2013), the findings from this second, and more wide-ranging, enquiry did serve to expose the multiple and heterogeneous individuals, groups and systems with the potential to threaten patient safety. Furthermore, media coverage of the findings once again raised awareness of risk and concerns about patient safety amongst the general public.

The sheer scale of the failings cited prompted a complete admission from the government that things had gone badly wrong:

> *"The essential diagnosis from the Inquiry is of an NHS that had veered, or was pushed, too far from its core humanitarian values and in too many places had its priorities wrong. Targets and performance management in places overwhelmed quality and compassion. Top down management instructions drowned out patient voices. Pressure to perform and fear of failure led to a controlling and defensive approach from organisations. Regulators, commissioners and others in the system became focused on their own roles and, in some cases, lost sight of the patients they were there to serve."* (Cm 8576 - March 2013)

Nevertheless, despite the evident willingness and indeed written commitment of the government to address the issues raised "*We must never allow this to happen again … This document is a call to action*" in its initial 82 page response to the Francis Report (Cm 8576, 2013), the identification of so many and varied threats to patient safety within the NHS, with no suggestions about how to prioritise a behavioural response, presented a massive problem. In any case, the NHS was still reeling from its latest and

highly criticised re-organisation[66] and was arguably in no fit state to embark on further extensive changes. Perhaps inevitably in the circumstances, "*action"* translated into yet further inquiries. Six separate investigations[67] into various issues raised by Francis were commissioned (Cm 8777 1, 2014 p 9).

All the findings and recommendations from these six commissioned investigations were incorporated into a further two-volume report "*Hard Truths"* (Cm 8777a and b, 2014) published 10 months later in January 2014. In addition, every one of the 290 recommendations in the Francis Inquiry report received an individual response.

Three of the commissioned investigations, the Keogh Review, the Berwick report and the Cavendish Review, are of particular relevance to this research, since their collective findings, along with those of the Francis public enquiry, led to the Department of Health commissioning the National Institute for Clinical Excellence (NICE) to develop evidence-based guidelines setting out safe levels of nursing staff on acute wards (NICE, 2014).

Despite the sheer volume of output on the issue, however, there was apparently little that was new to be suggested. The requests for a more safety aware culture, more and better information, more openness, speedier implementation of technology, better training and improved management are virtually indistinguishable from those first put forward in "*An organisation with a memory*" (DoH, 2000), and those of the other reports concerning patient safety published during the intervening 14 years.

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[66] (for details of this "*damaging and distracting*" episode see Ham *et al* , 2015)

[67] 1. Review into the Quality of Care and Treatment Provided by 14 Hospital Trusts in England, led by Professor Sir Bruce Keogh, the NHS Medical Director in NHS England.

2. *The Cavendish Review: An Independent Review into Healthcare Assistants and Support Workers in the NHS and Social Care Settings*, by Camilla Cavendish.
3. *A Promise to Learn – A Commitment to Act: Improving the Safety of Patients in England*, by Professor Don Berwick, co-founder and original director of the Institute for Healthcare Improvement in America and author of numerous papers and books on quality and safety in healthcare
4. *A Review of the NHS Hospitals Complaints System: Putting Patients Back in the Picture* by Rt Hon Ann Clwyd MP and Professor Tricia Hart.
5. *Challenging Bureaucracy*, led by the NHS Confederation.
6. The report by the Children and Young People's Health Outcomes Forum, co-chaired by Professor Ian Lewis and Christine Lenehan.

Patient safety fifteen years later – recognition of a chronic problem

Following his report on the Mid-Staffordshire issue, Professor Berwick went on to co-chair an expert panel set up by the National Patient Safety Foundation in America tasked to review progress on patient safety since the publication of "*To Err is Human*" (Kohn et al*,* 1999) fifteen years earlier and to make recommendations for the future. As the executive summary of its report makes clear, the intervening years had served mainly to demonstrate the complexity of the problem:

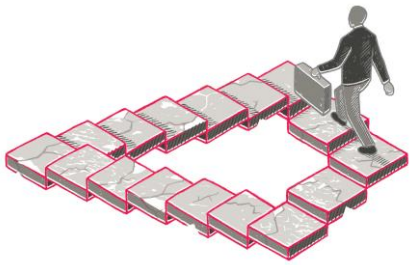
> *"Although patient safety has advanced in important ways … work to make care safer for patients has progressed at a rate much slower than anticipated … (and) the scale of improvement in patient safety has been limited. … It has become increasingly clear that safety issues are far more complex—and pervasive—than initially appreciated."* (National Patient Safety Foundation, 2015 p 1v)

What had, perhaps, changed was that after so long the scale of the problem had at last been recognised. Patient safety was clearly not something which could be targeted and dealt with once and for all, but, as Vincent and Amalberti (2015) point out, was constantly changing and expanding, requiring an ongoing commitment on many fronts.

> *Safety in healthcare is a constantly moving target. … we come to regard an increasing number of events as patient safety issues. … (as) innovation and improving standards in healthcare alter our conceptions of both harm and preventability.* (Vincent and Amalberti, 2015)

A publication from the Health Foundation (Illingworth 2015) encapsulated the new thinking on its cover. Under the title, "*Continuous improvement of patient safety: the case for change in the NHS*" is a picture of a person climbing an endless stair

Figure 3.3 The endless stair



After Penrose L and Penrose, R. (1958)

3.3 Multiple and changing perceptions of risk in relation to patient safety – some reflections on the chapter

This chapter has explored the evolution of patient safety in the UK in an attempt to show that both the historical and recent development of both the concept and its practice have been affected by changing perceptions of risk both in relation to healthcare and to other perceived hazards in the environment. In doing so it began the examination of the two propositions in this thesis, first that "*a) individuals identify multiple, qualitatively different threats in their environments and b) prioritise the most salient for a behavioural response*", and the second that "*a) different threats may be more or less salient at any particular time, but that b) salience may vary if circumstances change, altering individuals' responses*"

This final, more analytic, section looks back at the previous sections in the light of these propositions and, addressing the overall theme of this thesis, considers to what extent these changing perceptions of risk have appeared to affect the real-world behaviour of people and organisations up to the present day.

3.3.1 The health threat changes from fear of illness to fear of incompetence

The first section looked at the development of the concept of patient safety up to the end of the 20th century. In the beginning, it suggested, the outcome of illness and of medical intervention in its progress was seen by most as essentially a lottery, unpredictable and not primarily determined by factors under human control. From the start of the 20th century, however, as scientific advances in understanding how the body functions and developing medical and surgical treatments for disease were improving outcomes, the threat of death or disablement was perceived to be diminishing. People now began to anticipate cure, and with the reduction of fear of illness itself came increasing awareness of the risk of harm from errors in treatment or incompetent practitioners of healthcare.

There is, of course, no reason to believe that healthcare professionals actually became generally less competent as treatment improved. In fact all the evidence suggests that

with better understanding of bodily mechanisms they became better at treating illness. In addition, whereas 19th century pioneers of safe care such as Nightingale and Semmelweiss appeared to be 'crying in the wilderness', by the early 1900s there were increasing instances of initiatives from both individual clinicians and government to investigate episodes of apparently less than optimum care (Vincent, 2006 Chapters 1&2) with the aim of avoiding errors and improving practice.

Nevertheless, for many patients, the *salience* of the threat (Proposition 2) had shifted and their perceptions of risk in relation to healthcare had become focused on the actions of practitioners. This change of attitude in patients from 'doctor knows best' to a wariness about how well or otherwise they were being treated was fuelled in the late 20th century by increasingly easy access to information. Bennett and Ferlie (1994) quote a doctor who encapsulated the problem:

> *"Most major discoveries are now not published, or they are subsequently, but they're not published in the medical journals, they're published in newspapers. That puts us at a big disadvantage ... Whereas you can read the BMJ and the New England Journal of Medicine every week, at least know what's in it and look for things like that. You can't read all the papers every day and the magazines and the women's magazines carry all this as well. So it becomes almost impossible to maintain the feeling normally that you have, that you actually know more than the patients, when sometimes you actually don't."* (Bennett and Ferlie, 1994 p 149)

Patients' recognition of the fallibility of healthcare professionals led to an increased willingness to litigate when they perceived mistakes to have been made. Medical professionals were now faced with a new, qualitatively different threat. No longer were the risks from making mistakes confined to damage to professional self-image and/or sanctions from professional associations, but clinicians and the healthcare organisations they belonged to could potentially be liable for paying out thousands of pounds in damages. Although, as Vincent (2006, p 17) points out, the actual size of the risk was arguably much lower than the headline figures suggested, anxiety about possible claims affected both individuals and organisations.

3.3.2 Threat of litigation changes professional behaviour

For individual clinicians, therefore, anxiety about the perceived risk from litigation led to the widespread practice of 'defensive medicine'. Such a change in behaviour may not benefit and sometimes adversely affects patients (deKay and Asch 1998, Studdert et al, 2005, Studdert et al, 2006, Steurer et al, 2009, Furedi and Bristow, 2012). For instance doctors may avoid clinical treatment decisions which are seen as bearing a risk of failure, such as emergency surgery, complex obstetrics, or even making decisions about whether or not cancer is present from mammograms. Patients known for their "personal propensity for litigation" may also be avoided (Studdert et al, 2005). In addition, fear of litigation may lead to more tests than considered strictly necessary.

> *"the mere existence of liability risks is often sufficient to widen the range of disease probabilities for which diagnostic testing is the preferred clinical strategy. ... For some disease probabilities, testing is preferred by the physician even though it is not in the patient's best interests"* (de Kay and Asch, 1998)

While these examples relate to the behaviour of doctors, concern about the possibility of litigation was, and remains, widespread amongst other clinical professionals and was clearly demonstrated by many of the nurses, healthcare assistants and managers interviewed during the research for this thesis.

For healthcare organisations, and especially acute hospitals, the risk of litigation also loomed large. Indeed, the landmark study of New York Hospitals' medical injury and malpractice records (Brennan et al, 1991, Leape et al, 1991), which may be considered to have launched the patient safety movement, was undertaken primarily to assess the feasibility of offering 'no fault' compensation rather than pursuing claims through the courts (Hiatt et al 1989). Most interestingly, Hiatt et al (1989) note that the fear of "*sanctions or additional malpractice suits*" was so great that the New York Department of Health gave study participants "*immunity from any disciplinary action related to information acquired in the study*". Similar fears afflicted the UK, where the NHS Litigation Authority was established in 1995.

3.3.3 Findings from Harvard study threaten professional self-image

However, while healthcare organisations continued to focus on the risk of litigation, the publication of the findings of the Harvard Medical Practice Study (Brennan et al*,* 1991, Leape et al*,* 1991) in the prestigious *New England Journal of Medicine* triggered quite different perceptions of risk amongst many clinicians and the medical establishment in general. Evidence that so many patients were suffering harm from their time in hospital clearly challenged both their claims to expertise and their espoused ideals "*good doctors make the care of their patients their first concern*" (General Medical Council, 2013), threatening several aspects of their professional self-image.

This is not to imply that clinicians had previously ignored the patient safety issue. As noted in Section 4.1.2, audit within their professional groups had long been part of their practice, numerous papers concerning quality issues had been published, and indeed anaesthetists in the USA had set up their own organisation "*created expressly to help avoid preventable adverse clinical outcomes"* (APSF website, 2016). What changed as a result of publication of the Harvard study was that clinicians' perceptions of the *scale* of the problem altered. Whereas before the focus had been on individual failures of practice, now it was every professional clinician's concern.

Having changed their perception of the importance of the issue, doctors behaved as befitted a profession which prides itself as belonging to a scientific culture (Mishler, 1981). There was quick action to seek confirmation of these worrying findings. As well as the large Australian study based on a similar methodology to the Harvard Medical Practice Study (Wilson et al*,* 1995), many individual clinicians also began research on adverse events in their own specialties. A brief citation search for published research between 1991 and 1996 yields more than 400 reports of clinical studies of adverse events in many different specialties.

Interestingly, although clinicians were now facing up to the reality of the issue of patient safety, there was also concern amongst some members of the medical profession that it should remain a problem to be solved by professionals, without

interference from outside. Arguably there was a perceived risk of reputational damage if the issue became widely publicised, and Richard Smith, the then editor of the British Medical Journal, recalled being criticised by a high ranking doctor for arguing in 1990 that Britain should set up a similar study to those undertaken in America and Australia, possibly alerting the media to the issue of medical error (Smith, 2000).

3.3.4 Raised public awareness of risk to patient safety leads to government action

Can it be assumed that a raised awareness of patient safety amongst medical professionals affected the perceptions of the general public in relation to risk in healthcare? The 1990s were in any case characterised by a heightened recognition of the role of risk in everyday life, with academics such as Giddens and Beck terming it the 'risk society' and seeing risk as "*the mobilising dynamic of a society bent on change*" (Giddens, 1999). However, the threats which may be posed by illness are not generally of high importance to those who are well themselves and have no significant others who are ill. There were of course continuing scandals during the 1990s, for example that involving paediatric cardiac surgery at Bristol Royal Infirmary, which generated considerable media exposure, but they were very specific problems at specific hospitals and were not perceived as posing a widespread threat.

Not so, though, with the revelations which hit the headlines on publication of "*To err is human*" in 1999. Here was something that threatened the comfortable perception that had grown over a century of increasingly effective treatment for illness; that, should a health problem arise, medical science would take over and provide a cure. Suddenly, first in America and then in England, the general public's perceptions of risk in relation to healthcare, fuelled by headlines in the media, were challenged by the revelation that not just a few, but hundreds of thousands of people were being actually harmed by the treatment they received. Publication of these figures in America immediately catapulted the issue into one which was perceived to require immediate action, with both Congress and the president announcing new initiatives to address the situation within a fortnight of the report's release (Leape, 2000).

The response in the UK mirrored that in America, with the government announcing a new safety initiative and setting up five new regulatory agencies (DoH, 2001). It is suggested that government action at this time provides a clear demonstration of the second proposition of this thesis, that the salience of a threat may alter if circumstances change, altering the response to that hazard. The medical establishment and the Department of Health had been aware of the figures highlighted in "*To err is human*" for at least eight years, but an increasingly beleaguered Conservative administration had not prioritised the issue. However, by 1999 a number of factors had changed. There was a new Labour Government, elected to office with a mandate to improve the Health Service, the newly appointed Chief Medical Officer, Liam Donaldson, was personally interested in and committed to improving patient safety, and now public opinion was also demanding change. It was the perfect moment to bring patient safety to the top of the agenda and announce a major new initiative to address a health threat, unchanged in itself, but suddenly perceived to require an urgent response.

This episode can also be seen as offering supporting evidence in relation to an unexpected theme to emerge from this research (to be discussed in greater detail in succeeding empirical chapters), the role of emotion in determining both selection of the hazard to which to respond, and the behavioural response to that hazard. Hence, the widespread shock and horror engendered in the general public by the large numbers of deaths, meant, for the politicians, acute anxiety that (a) they might be blamed for ignoring the issue for so long and (b) the need to be seen to act immediately to avoid the risk of further blame.

The setting up five new agencies over a very short space of time demonstrated exceptional commitment on the part of the government to deal with a new perception of urgency in relation to patient safety. However, the outcome was not always what had been anticipated. Agencies' perceptions of what was the focal risk sometimes differed from those of government ministers as Day and Klein (2004) in a Kings Fund report on their three year study of the Committee for Health Improvement (CHI) made clear.

> *"ministers saw CHI as an inspectorate, informing the government and the public alike, based on the model of OFSTED. In contrast, CHI, anxious to make itself acceptable in the NHS, repudiated the inspectorate label, insisting that its role was to help trusts to improve, not name and shame."* (Day and Klein, 2004)

This example illustrates another key premise of this thesis, that despite one threat being the ostensible focus of the behaviour (i.e. risk to patients), other, sometimes unacknowledged, threats may appear to have greater immediate salience. On the one hand ministers were concerned to be able collect evidence to assure their public that something was being done about improving quality i.e. the risk was losing the confidence of their voting public. On the other hand the risk the CHI was most concerned to deal with was that its task would be made more difficult if it lost the goodwill and co-operation of NHS staff and organisations.

Thus, although both parties (Ministers and the CHI) clearly wished to address the need to improve patient care, two quite different perceptions of risk affecting that objective can be identified, leading to quite different behavioural responses.

3.3.5 Government behaviour changes as crises come and go

Further examples of the impact of changing conditions on perceptions of risk, and thus behaviour in response to a known threat can be seen in the varying government response to the patient safety issue during the ensuing years. Hence, after a period in which patient safety was seen as an issue which had been appropriately dealt with and the perception of risk had receded, two highly critical reports on progress (National Audit Office, 2005; DoH, 2006) and the various problems unearthed by the Health Commission, led to a health select committee investigation on patient safety. This might be thought to have reflected an increasing sense at government level that urgent action to improve patient safety was required. However, the Select Committee, rather than asking for details of patients' complaints about the care they had received, appears to have been driven by qualitatively different perceptions of risk to themselves as politicians (i.e. that of seeming to ignore voters' right to be heard). Its final report focused strongly on improving complaints procedures, rather than on any new systems for improving care (House of Commons Health Committee, 2009).

Then came the Mid-Staffordshire crisis, where the perceived risk of continuing poor quality care prompted three major internal enquiries. Initially, these inquiries were perceived by the Labour government as an appropriate response to the issue and, perhaps fearing a threatened loss of face more than adverse publicity, it continued to reject the demands for a public enquiry from the bereaved relatives. The new Coalition administration, however, with no history of opposing the idea, and able to distance itself from its predecessors failings, had everything to gain from capitulating to the unremitting pressure exerted by '*Cure the NHS*' and thus reassuring the public that something was being done (Black and Mays, 2013). Once again, the focal threat and the degree of risk it posed remained unchanged, indeed it was argued by many of those involved that as a result of the previous internal enquiries much had improved at Mid-Staffordshire. What had changed was that now, because of the change of administration, the risk of losing face had abated and the risk of refusing to respond to public pressure and being seen as no better than the previous government had increased.

Interestingly, though, it should be noted that for '*Cure the NHS*', their perception of risk, which related to the threat of the events at Mid-Staffordshire being ignored, diminished with the institution of the public enquiry. They suspended their aggressive campaigning and became co-operative contributors to the enquiry.

Publication of the report into the public enquiry into the Mid-Staffordshire issue (Francis, 2013) heralded a further escalation in both government and public perceptions of risk in healthcare, providing a perfect example of the phenomenon first described in Kasperson et al (1998, 2003) as the social amplification of risk, where perceptions of risk in relation to a particular threat or hazard, unchanged in itself, "*interact with psychological, social, institutional, and cultural processes in ways that may amplify or attenuate public responses to the risk or risk event*"(Pidgeon et al, 2003). Predictably therefore, a new rise in consciousness of risk translated into behaviour, in this case the institution of six further enquiries, all relating to specific threats identified in the public enquiry report. Each of these identified further and more specific threats to patient safety and each in its turn was followed by

government action. In addition, hospital trusts themselves apparently accepted the need for change, with a research report, published by the Nuffield Trust in February 2014, a year after publication of the second Francis Report, noting that;

> *"Trusts reported that they had already been taking action to improve the quality of care in their hospitals prior to 2013, but that the publication of the Francis Report had added impetus to this, in particular to work on complaints handling, improving staffing levels in nursing and emergency care, and securing better engagement of staff"* (Thorlby et al, 2014)

By 2016 the flurry of interest in what went wrong at Mid Staffordshire, which spawned further government action, had died down and the old spectres of financial pressures and failure to meet targets were once again hitting the headlines. The figures from the King's Fund Quarterly Monitoring Report at that time show that "*an increasing number of NHS organisations are concerned about meeting finance and efficiency targets*" and that "*performance against waiting time targets and other key performance measures continued to deteriorate during the last quarter as the NHS faced increasing demand for services*" (Murray et al, King's Fund 2016).

By this time, though this would doubtless have been strenuously denied, all the signs suggested that government concern about patient safety was beginning to attenuate again as perceptions of the salience of other risks amplified. It is particularly important to note, given the findings from this research which focus strongly on the perceived association between staffing levels and patient safety, that the work on evidence based staffing levels being carried out by NICE had been suspended by NHS England. Oliver (2016) suggested that this was "*driven by fear that a national "formula" might prove unaffordable and inflate costs*". This is a very big change in risk perception from that which had obtained in the years following the Mid-Staffordshire scandal, during which the field work for this research was carried out. The first Francis report of the Mid-Staffordshire enquiry (Francis, 2010c) commented that "the decline in standards was associated with inadequate staffing levels and skills" (Francis, ibid p.1497) a view reiterated in the Berwick report (Berwick, 2013 p.40). There were also a huge number of academic research projects on this subject, so many that Brennan et al (2013) were able to publish a review of reviews.

In further confirmation of attenuating interest in patient safety, in April 2016 the National Patient Safety Alerting System, taken over by NHS England with the other functions of the NPSA when it closed in 2012 and re-launched in 2014, was outsourced to a new body, NHS Improvement. This organisation had the huge remit of "*overseeing foundation trusts and NHS trusts, as well as independent providers that provide NHS-funded care*", and offering "*support to providers and local health systems to help them improve*" (NHS Improvement website 2016). The promotion of patient safety was only a part of its function, very different from the situation which obtained only five years before when patient safety merited a complete organisation of its own.

3.3.6 Concluding comments

This chapter has sought to place 'patient safety' in its philosophical, historical and cultural context, to provide the background to the empirical chapters to follow. It has shown how the modern understanding of the concept developed as people's confidence in the possibility of curing illness increased and their trust in clinicians to deliver that cure decreased. It has documented the wide-ranging structural and legislative responses to evidence suggesting that large numbers of patients were being harmed during the delivery of healthcare.

The chapter's importance in terms of the arguments to be explored in this thesis is that it demonstrates documented evidence of changes over time in perceptions of the urgency and importance of threats to patient safety as other perceived risks take greater or lesser precedence. It has thus set the scene for chapters 5, 6 and 7, where the empirical data collected as part of this thesis are used to explore the ways in which individual healthcare staff in a specific NHS hospital trust respond to perceptions of risk; showing how they assess the likelihood of adverse events in relation to patient safety, and the situational and temporal influences by which such perceptions may be modified or changed.

Chapter 4: Methods

Underpinning this thesis is a belief in the relevance and value of qualitative real-world research and its nature as a learned craft (Daft, 1983) or art (Stake, 1995; Weiss, 1995). Daft's seminal paper offers a reminder that, although formal research techniques are integral parts of the research process, they are "*intermediate points between an initial hunch and the final story*" (Daft ibid, p 541). It is also important, he argues, to take a non-linear approach which allows for error and unexpected findings, a focus on understanding real-world human behaviour and processes, and awareness that there is an "*uncertain, emotional, human side of research*" (Daft ibid, p 545). Hence, though the following pages present a truthful and transparent description of the design and conduct of this research, this, like all methods chapters, inevitably puts an organised and linear gloss on a research process in which;

> *"design, analysis and write-ups are also being carried out simultaneously with data collection and all four aspects continually influence and impinge on each other"* (McCall and Simmonds, 1969 p 81).

The research for this thesis was designed as a single case study and used qualitative methods. It had two primary aims. First, to collect empirical data from hospital staff which would describe the multiple threats that they perceived in their working environment and illuminate processes by which they might select a focal threat and choose a behavioural response. It was hoped this might contribute to current understanding of how assessment of risk and prioritisation of response might impact patient safety. The second, more global, aim was that analysis of these data would increase theoretical understanding of the links between multiple risk perception, decision-making and behaviour.

The decision to use a case study approach, rather than an experimental or survey based design was influenced by a number of factors. First, although there is a long and illustrious history of illuminating aspects of risk perception and decision-making through laboratory based experimentation[68] it was desired to collect data on real life

[68] See for example the seminal works of Daniel Kahneman, 1934 - and Amos Tversky 1937 - 1996

phenomena in an everyday environment. Hence it was impossible to control and manipulate the variables as in an experimental setting. Using a survey to address at least some of the research questions was briefly considered, but it would have been difficult to design a survey which would reliably elicit people's perceptions of various threats in their environments without inappropriately leading them in directions anticipated by the research propositions. Furthermore, surveys are notorious for producing low response rates and advice taken at the research site suggested it was unlikely to constitute an exception. A case study approach, on the other hand, is considered appropriate when, as here, the focus of the study is to answer "how" and "why" questions, the behaviour of those involved in the study cannot be manipulated; and contextual conditions are relevant to the phenomenon under study (Yin, 2003).

This chapter first addresses the appropriateness of using a case study approach to explore the research questions. The second section looks in detail at the whole research process. It begins with an explanatory overview of case selection, project development and an outline of the way in which the research process was refined and re-directed over a long period of time. It then addresses ethical issues pertaining to the research before detailing its overall design; including observation sessions, selection of participants, development of interview protocols, and conduct of individual interviews and a focus group Section three discusses methods used for data analysis.

4.1 Rationale for choice of methodology

The very essence of the concept of perception, as described by Kant in his *Critique of Pure Reason* (Kant, 1998) is that it relates to how people experience and understand the world rather than to any completely objective reality. It is therefore argued that research concerning perception, whether relating to risk or anything else, must necessarily be conducted from the perspective of an interpretivist (sometimes called constructivist) paradigm. This paradigm assumes that both investigator and subjects operate, not within a world in which nothing can be seen as an objective fact, but within a world in which 'reality' is always socially constructed by those within it (for discussions of these approaches see for instance Berger and Luckmann, 1966; Searle,

1995; Schwandt,1998). Since the whole point of this research was to investigate, not hazards themselves as they exist in some objective reality, but people's varied and subjective perceptions of threats and the risks they pose, it was appropriate to choose a methodological approach which was compatible with an interpretivist view of the world.

4.1.1 The origins of the interpretivist paradigm

Scientific thought had its beginnings in rationalist philosophical thinking about the fundamental nature of being. Francis Bacon (1561-1626) argued that knowledge acquisition is an empirical (rather than reasoning) activity and can only be derived from observations in the real world. Bacon's writings led to the development of the 'scientific method', involving systematic observation, measurement, and experimentation.

Scientific enquiry has two main aspects, the ascertaining and discovery of facts and the construction of hypotheses and theories (Von Wright, 1971). However, these endpoints may be achieved through many different processes, depending on the type of enquiry. During the 18th and 19th centuries two distinct schools of thought emerged, positivist[69] and anti-positivist, or interpretivist. Positivism, originating from the ideas of Comte (1798-1857) and later expanded by Durkheim (1858-1917) and Wittgenstein (1889-1951) advocated a rationalist view of social scientific enquiry. This imitated procedures in the natural sciences, used mainly quantitative methods and admitted only a very circumscribed view of what could be accepted as verified fact. Anti-positivism was based mainly on the views of Kant who, in his '*Critique of Pure Reason*' (Kant, 1781, 1787), rejected the idea that any view of 'reality' could be other than subjective:

> *"although all our cognition commences with experience, yet it does not on that account all arise from experience. For it could well be that even our experiential cognition is a composite of that which we receive through impressions and that which our own cognitive faculty (merely prompted by*

[69] Burrell and Morgan (1978) use the term 'functionalist'

> *sensible impressions) provides out of itself"* (Kant, 1787, translated by Guyer and Wood, 1998)

Kant's ideas were influential in the development of other philosophical critiques of scientism and positivism, and of phenomenology by Alfred Schutz (1899-1959), ultimately to become labelled as 'interpretive thinking' (Schwandt, 1998). [70]

The basic premise of the interpretivist approach, as summed up by Angen (2000, p 385), is that reality is construed through the meanings and understandings of the social world in which we exist, and that "*there can be no understanding without interpretation*". She argues that this "*leads to the assumptions that all interpretations are temporal, located, and therefore always open to reinterpretation*" and that "*because we cannot separate ourselves from what we know, our subjectivity is an integral part of our understanding of ourselves, of others, and of the world around us.*".

It was through such an interpretivist lens that the research for this thesis was conceived and the methodology constructed.

4.1.2 An inductive/deductive methodological approach

The two broad paradigms of scientific enquiry, positivism and interpretivism, have come to be associated with two very different methodologies. Positivism is seen as employing a deductive approach, aimed at testing theories or hypotheses and using experimental or survey methods to collect predominately quantitative data. Interpretivism is concerned with theory building using an inductive approach. It employs such methods as action research, case studies[71] or ethnography and collects mainly qualitative data (Von Wright, 1971; Bhattacherjee, 2012).

However, making a distinction between deduction and induction by assigning these processes to one or other paradigmatic approach is artificial and may be unhelpful.

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[70] For expanded accounts of this historical process see, for instance, Burrell and Morgan (1979), Schwandt (1998), Shah and Corley (2006) Bhattacherjee (2012).

[71] Though George and Bennett (2005 p 18), oddly since otherwise their view of what case studies comprise and can accomplish is broadly in keeping with those of other scholars, argue for a positivist approach and exclude post-modern or interpretivist narratives

For instance, Glaser and Strauss, despite their firmly interpretivist approach, acknowledge in their seminal work on the development of grounded theory that:

> *"Testing theory is, of course, also a basic task confronting sociology. We would all agree that in social research generating theory goes hand in hand with verifying it ... Surely no conflict between verifying and generating theory is logically necessary during the course of any given research"* (Glaser and Strauss, 1967 p 2)

while Popper, coming from the positivist tradition and a clear proponent of the deductive approach, nevertheless recognises a role for induction in the process of identifying and testing a hypothesis, even though he argues that some form of informal theorising must come before any inductive process:

> *"I do not believe that we ever make inductive generalisations in the sense that we start with observations and try to derive our theories from them. I believe that the prejudice that we proceed in this way is a kind of optical illusion, and that at no stage of scientific development do we begin without something in the nature of a theory, such as a hypothesis, or a prejudice or a problem ... which in some way guides our observations"* (Popper, 1957- reprinted in Bynner and Stribley, 1979 p 19)

Turner (1988 p 111) summarises such viewpoints, stating unequivocally that no research can be wholly inductive and that "*all forms of research, both qualitative and quantitative are based upon a complex admixture of deductive and inductive procedures*". This research, while taking a broadly interpretivist overall perspective, reflects these views and utilises both inductive and deductive approaches in its design, methods and data analysis. Starting with an initial loosely formulated idea that both people's perceptions of risk in relation to a specific threat and their subsequent behaviour may radically change in response to other perceived threats in their environment[72], the research process has followed a dynamic and iterative trajectory with constant re-assessment of the precise details of what needed to be investigated in order to address the issues involved.

At a fairly early stage in this process and following a comprehensive literature review (see Chapter 2) , two propositions (in essence pre-conceptions, or implicit

[72] See Chapter 1: Introduction, pXX

hypotheses)[73] were developed which set out the pre-existing assumptions which it was hoped would be supported by the research findings (Clay, 2017). The first stated a) *that individuals identify multiple, qualitatively different threats in their environments and b) prioritise the most salient for a behavioural response*, and the second a) *that different threats may be more or less salient at any particular time, but that b) salience may vary if circumstances change, altering individuals' responses*.

The four research questions formulated to address these propositions were:

5. What threats do ward-based healthcare staff perceive in their working environment? (Proposition 1a)
6. By what processes do staff assess risk and select a specific, most salient, threat? (Proposition 1b)
7. How is their behaviour modified by these processes? (Proposition 2a)
8. How may changing perceptions of risk further affect behavioural responses? (Proposition 2b)

4.1.3 Qualitative methodology and a case study approach

It was considered that such questions were best approached through a qualitative case study methodology. Yin (2015 p 9-10) identified five features which distinguish qualitative studies from other forms of social science research:

1. Studying the meaning of people's lives, in their real-world roles
2. Representing the views and perspectives of the people in a study
3. Explicitly attending to and accounting for real-world contextual conditions
4. Contributing insights from existing or new concepts that may help to explain social behaviour and thinking
5. Acknowledging the potential relevance of multiple sources of evidence rather than relying on a single source alone

Despite a long history of important insights gained through using qualitative methods they have had a "*rough time*" gaining mainstream acceptance in sociological and psychological research (Boyatzis, 1998 p vi) and have been undervalued despite their ability to generate theory which is " *contextually sensitive, persuasive, and relevant*"

[73] The use of propositions can be justified where, as in this study, testable hypotheses cannot be generated. However, as Clay (2017) points out, they need to be viewed with caution because they only need to be convincing and internally consistent to give appearance of validity, which ultimately may not be substantiated.

(Henwood and Pidgeon, 1992 p 97). The same has been true for medicine, that other 'scientific' discipline focused on human subjects, where a struggle to accept its usefulness has been evident for many years. For a while in the 1990s it appeared that opinion was changing, with the British Medical Journal (BMJ) commissioning a series of articles on qualitative studies in healthcare (e.g. Pope and Mays 1995 and other articles in series), heralded by an editorial declaring the mutual value of a dialogue between the two traditions (Jones, 1995). However, it appears that the same arguments constantly need re-statement. Twenty years on the BMJ has reverted to its former editorial policy and decided to give low priority to papers based on qualitative studies. A letter from seventy six "*senior academics*" deploring this action (Greenhalgh *et al*, 2016) met with the following response:

> *"we do not prioritise qualitative research because, as mentioned in our information for authors, qualitative studies are usually exploratory by their very nature and do not provide generalisable answers."* (Loder et al, 2016)

As suggested by this reply, the main criticisms of qualitative research are directed towards the extent to which findings can be generalised and any theoretical insights can be tested and verified, an exhaustively laboured point and yet one apparently still extant. In defence, Mays and Pope (1995a) provide a checklist of questions to assess rigour and quality and Dixon Woods *et al* (2004), make a further spirited defence of the genre saying it has the potential to be important, valid and relevant, provided the research design fulfils specific criteria likely to be universal to all forms of research i.e. clear research questions suited to the particular form of enquiry; clearly described and appropriate sampling, data collection and analysis; evidence to support claims made; integrated data, interpretations and conclusions; and that the work makes a useful contribution.

The case study, a specialised type of qualitative research (Yin, 2015 p 68), has suffered from all the criticisms levelled at qualitative research in general, plus a few of its own, mostly in relation to the small non-representative samples they may involve. The view that being non-representative is a problem has been strongly challenged, with both Flyvbjerg, (2006) and Siggelkow (2007) arguing that in-depth examination of a key phenomenon and making a contribution to theory building is more important than

finding numerous examples. Other commentators agree and maintain that that theories constructed from case study research are likely to have important strengths because of: their compatibility with experiential understanding (Stake, 1978); the possibility of determining factors which influence action (McCall and Simmonds, 1969); the novelty, testability and empirical validity which come from intimate linkage with the evidence (Eisenhart, 1989); and their value in theory development, for testing hypotheses and fostering new ones (George and Bennett, 2005 p 19).

The definition of a case study that Yin gave more than three decades ago remains apposite despite the passage of time:

> *"A case study is an empirical enquiry that:*
> - *investigates a contemporary phenomenon within a real life context; when*
> - *the boundaries between phenomenon and context are not clearly evident; and in which*
> - *multiple sources of evidence are used"* (Yin, 1984)

A key issue which still occasions much debate is whether it is possible to generalise from case studies, and in particular from single cases. Single case research has been defended as exploiting opportunity to explore a significant and unusual phenomenon (Eisenhardt and Graebner, 2007; Siggelkow, 2007), but their arguments appear to imply that if single is good, multiple is better;

> *"theory building from multiple cases typically yields more robust, generalizable, and testable theory"* (Eisenhardt and Graebner, 2007 p 27)

a view also taken by Bhattacherjee (2012 p 40). However Yin, who in his early work also appeared to incline to the view that multiple cases were to be preferred (e.g. Yin, 1984, 1989, 1994), more recently argues that trying to mimic conventional sampling procedures by substantially increasing the number of cases would mean "*sacrificing the in-depth and contextual nature of the insights inherent in using the case study method in the first place*" (Yin 2013 p 325). He suggests instead a process he calls 'analytic generalisation';

> *"the extraction of a more abstract level of ideas from a set of case study findings ... the analytic generalization should aim to apply to other concrete*

> *situations and not just to contribute to abstract theory building"* (Yin 2013 p 325)

Erickson (2012) similarly supports single case analysis. He argues that rather than treating it as an example of a general class of similar cases the focus should be on discovery of patterns and elucidation of processes, on internal rather than external generalisation.

To summarise, this study takes an interpretivist perspective and utilises both deductive and inductive approaches to data collection and analysis. It explores behaviour in a specific setting through in-depth examination of observational and interview data. This, it is argued, justifies the choice of a qualitative methodology and a single case study approach. The next section describes the design or "*blueprint*" (Bhattacherjee, 2012 p 35) for the research.

4.2 The research process

4.2.1 Overview of initial case selection and general organisation of research

Case identification and selection process

Selection of this case resulted from a combination of unusual circumstances. In the late 2000s senior managers in the hospital trust involved (City Trust) became aware that the author of this thesis (referred to in this thesis as the researcher) had an interest in aspects of risk perception. They offered access via an honorary appointment to investigate a specific problem - the inaccurate measuring and recording of patients' fluid intake and output. Although a routine task, poor fluid balance control could have serious consequences for patients, and in a recent incident a patient had suffered severe harm. A number of measures had already been taken to improve compliance, with little or no effect.

In consultation with a small research steering group of senior managers it was decided the fluid balance issue needed to be addressed as part of a broad approach designed to gain an in-depth understanding of the ways in which healthcare staff carried out and viewed their work, and in particular how their perceptions of risk impacted the

way they behaved. This would be achieved through observation on wards and interviews with ward based staff. Fluid balance measurement would not be flagged as of particular concern, but data about how that and other tasks were perceived and carried out would be collected.

It became clear early on in the process that the projected research, while meeting the needs of Trust managers, would also be suitable for a doctoral thesis. It was recognised that, as the case site had not been subject to a formal selection process, the generalisability of any conclusions would be open to question. On the other hand, the hospital had not been selected with any idea of doing this research and there was no immediately obvious reason to suppose it differed in any systematic way from the other 21 NHS non-teaching acute hospital trusts which, like City Trust, serve large centres of population of between 150,000 and 200,000. In particular it was felt that the fundamental issues faced by healthcare staff working directly in patient care - i.e. their goals, philosophies, beliefs and values (see Roy, 2018 p 89) - were likely to be similar across the NHS, and it was considered that the advantage of having exceptional research access (Yin, 1989 p 48) far outweighed any possible site selection bias.

General overview of the research process

The research was split into several phases, with a review after each phase to determine the detail of the one to succeed it. This dynamic approach was designed to ensure that an appropriate response could be made to emerging findings, rather than having to maintain rigid adherence to a set plan of action.

A brief Scoping Phase involved familiarisation with the setting and current nursing practice through short (2hr) periods of observation on 19[74] of the 25 wards on the two main hospital sites[75]. During this phase there were regular meetings with steering group members to develop concepts and themes on which to base a semi-structured interview protocol. This process ensured that managers remained closely involved and

[74] The researcher had no influence over which wards were selected in this phase and was accompanied during these visits by a Clinical Educator

[75] These preliminary observational data were subsequently included in the overall case analysis

were clear about what could be delivered, as Anderson et al (2008) suggest is essential for a scoping project.

The steering group met at the end of the Scoping Phase and agreed the detail of Phase 1 of the project and a preliminary outline of the interview protocol. Aspects of the methodology, both observation techniques and the structure and content of the interview schedule, were further developed and refined during fieldwork. The first ward to be investigated was randomly selected[76] from 20 suitable wards[77], and this random selection process was repeated over the following 18 months at steering group meetings held on completion of the fieldwork on each ward. Three wards were investigated in this phase.

There were two outcomes from Phase 1. First, the fieldwork process generated an idea for a specific tool which could improve compliance with the measurement and recording of fluid balance[78]. Second, while it was hoped that the proposed new tool would be effective in dealing with the fluid balance issue, the steering group felt it would also be useful to continue the original investigation into influences on how staff perceived and carried out their work.

Data collected in Phase 1 identified many different threats perceived by staff, their views about the risks these posed and their recollections of their behaviour in response. However, only data collected during observation sessions showed actual behaviour, and analysis of these could only speculate on the internal processes of risk perception and decision-making which had evoked the observed responses. For Phase 2 it was agreed that more direct investigation of staff interpretations of actual events involving risk perception in which they had participated, might be possible through retrospective examination of adverse events recorded on the hospital database. Known as the Datix system, this software enables anyone with access to a computer on the hospital network to report adverse events and near misses. Hence, although for a

[76] Drawn from a 'hat' by a member of the steering group
[77] The two paediatric wards were deliberately excluded, and four other wards were left out during this phase for random reasons unconnected with the study.
[78] This idea was taken up by City Trust and became a separate project, not reported here

researcher to be available on scene when an incident occurs to capture a participant's decision-making process is difficult, if not impossible (Njå & Rake, 2008), the reporting of an adverse event does provide evidence of a specific action in response to a perceived threat, and a close to contemporaneous account of why someone decided to take that single specific action. Arguably these accounts would provide evidence of some of the conscious elements of the preceding decision-making process, while by interviewing the staff who filed them it was hoped to gain further insights into both conscious and non-conscious precursors of the behaviour.

Phase 2 of the research thus focused on a single observable behaviour, the filing of an adverse event report on the grounds that patient safety was perceived to be at risk. This provided an example of a specific action (filing a report) following identification of a focal threat and making a decision about how to respond to it. Initially it was thought that Datix records of adverse events relating to fluid balance issues would be suitable for investigation, but it became clear that these were too infrequent to provide adequate data over a reasonable period of time. It was therefore suggested that the more frequent instances[79]in which a shortage of staff was identified as posing a risk to patient safety and reported as an adverse event might be suitable, particularly since the observational and interview data already collected plainly reflected healthcare staffs' general perception of having too much to do, which was attributed to staff shortages. This chimed with the original explanation, "too busy", offered by staff to explain poor compliance with fluid balance recording.

Initial resistance from the steering group to this suggestion on the grounds that focusing on staff shortages was too politically sensitive was withdrawn following written assurances that there was *"no intention for the research to focus on, or draw conclusions about the adequacy of staffing levels, only to investigate why staff perceive this to be a threat and report a risk"* (Extract from letter to Chair of the Steering Group,

[79] Averaging out at around 10 per week during the 15 months of data collection

February 2012) and that interested parties would be given access to any written material from the project and offered opportunity to comment and request changes.

It was also agreed that the only reports selected from the Datix system would be those which recorded a *perceived risk* to patient safety, i.e. a threat, not an event. Any report of staff shortages which were deemed to have caused a patient specific harm were excluded from the sample[80].

The fieldwork for Phase 2 was carried out between February 2012 and April 2013. Towards the end of this period the steering committee also suggested, sanctioned and arranged a focus group with senior clinical and managerial staff attending a regular ward managers' meeting. The purpose of this was to initiate a collective discussion of decision-making and the prioritisation process in relation to staffing levels on wards, so gaining a different but complementary perspective on the issues involved[81].

4.2.2 Ethical issues

As both phases of the research met the criteria for a "service evaluation study", it did not require submission for ethics approval through the NHS Integrated Research Application System (IRAS). However, the proposal was reviewed and approved by a King's College London ethics panel and all requirements were fully complied with[82]. The research also followed the principles in the Code of Ethics and Conduct published by the British Psychological Society (BPS, 2009). In the end, however, it is recognised that the ethical conduct of this type of research depends on personal integrity and cannot be assured through bureaucratisation (Murphy and Dingwall, 2007).

While the ethical conduct of research is always of the highest importance, there is also a case for giving particular consideration to issues specific to health services research

[80] Although it might be argued, given the evidence cited in this report, that patients were *ipso facto* harmed by the inevitable reduction in their quality of care when too few staff were available

[81] See Caillaud and Flick, 2017, for a discussion of the value of including focus groups in mixed methods studies

[82] Details about the specifics of the selection, observation and interview processes are given in Section 4.2.3, this section simply reviews the ethical issues raised by these processes.

(Richards and Schwartz, 2002). Key ethical issues that needed to be addressed were: general confidentiality issues regarding people, and particularly patients, present during the research process; protecting the participating staff from harm before, during and after the observation sessions and interviews; ensuring appropriate anonymization of data; and presenting an honest analysis of data and reporting of findings.

Respecting the confidentiality of unwitting participants

This issue was most likely to arise during periods of observation on the wards. Patients and visitors, insofar as they were interacting with staff, were under observation without their consent. Actions taken to reduce these problems included: respecting privacy by not going behind closed curtains or into bathrooms; not recording confidential information such as peoples' names in field-notes, and offering explanation of the research to anyone who requested it.

Protecting informed participants

For the observation sessions in the scoping phase and Phase 1, staff were told in advance about the research and were in any case used to being observed at work by clinical educators and senior managers. Also there was nothing secretive about the process with the observer taking notes in full view[83]. However, staff did not formally consent to being observed and it would have been difficult (though not impossible) for them to opt out. As with patients and visitors, if staff requested more information about the research and what was being recorded they were given it, and details about the research were also displayed on noticeboards in staff rooms. There were a few occasions when staff suggested that conducting observations would be inappropriate, and these views were respected.

[83] It is recognised that this necessarily introduces bias "*the observer's effects on the observed*" (Schwartz and Schwartz, 1955), however the researcher agrees with Murphy and Dingwall (2007) that in most cases covert methods are not defensible.

For the interviews in Phase 1, where all staff on the three wards were potential participants, an anonymised opt-in process meant that staff chose for themselves if they wanted to be interviewed and colleagues did not need to know who had or had not decided to take part. The Phase 2 interviews were with staff who had reported insufficient staff as an adverse event. Although these staff were initially identified and given details of the research by a senior manager, the manager had no way of knowing whether or not they decided to participate.

The project was rated low risk by the King's ethics panel, nevertheless in-depth interviews can inadvertently touch on sensitive issues, as illustrated by the following comment from a Phase 2 participant;

> *"I could get emotional now just talking about it because it was that stressful." (IC60)*

so it was important to be aware of anyone's distress and be prepared if necessary to suspend or abandon the interview and procure appropriate help (Orb et al, 2001; Richards and Schwartz, 2002).

Anonymization of data

Since City Trust would receive a report based on the research as well as a copy of the thesis it was particularly important to protect the identity of participants by concealing not only their names, but also their job titles and the wards they came from. In addition, field-notes and transcripts were carefully scrutinised to ensure that names and places were disguised before using these data in any written material.

Honest analysis of data and reporting of findings

There are also ethical issues in relation to analysis and reporting data (Bhattacherjee, 2012 p 139). The main pitfalls here lie in interpretation of data collected. Particular attention has been paid to: reporting the methods used, warts and all; recording where inference has taken over from evidence; and to note, when using quotations, when a particular issue was mentioned by only a few participants, rather than many,

to avoid giving a biased impression of consensus. However, it is recognised that in a qualitative study of this nature it is difficult to be certain that data has never been misrepresented.

4.2.3 Research design

The research was designed as a single case study and data was collected from multiple sources. It used various methods of data collection:

- Observation on wards (64 episodes)
- In-depth semi-structured interviews with staff (67)
- Focus group (1)
- Examination of documents

Fieldwork was carried out in three phases. A preliminary or scoping phase assessed feasibility, and developed concepts and themes on which to base an interview protocol. This phase involved observations on wards, the data from which was included in the analysis of results. In Phase 1, multiple observations took on three randomly selected wards and interviews were carried out with ward staff. Phase 2 involved interviews with staff who had reported an adverse event related to having insufficient staff on duty during their shift, plus a discussion group held with a number of senior managers.

Rationale for use of research techniques

It was felt that the use of mixed qualitative methods, often referred to as 'triangulation', would be appropriate for the study. Using mixed methods is frequently cited as a test of validity, although Bloor et al (2001 p12-13) note that data acquired using a variety of methods, while they may enrich understanding of a topic, do not *ipso facto* corroborate each other[84]. Nevertheless, provided the methods used are suitable for collecting the data required to meet the study objectives, using several techniques

[84] although it may occasionally be the case that (for example) an observed behaviour may also be referred to during an interview.

can bring different perspectives to bear on the issues involved and increase the possibility of new insights (Ritchie, 2013 p37).

The methods used and the reasons for their choice are discussed in the following sections. It should be noted that the coding system used for the observation sessions and for the interviews in both phases of the research is as follows:

- Observations = OC (**O**bservation **C**ode) followed by the number of the session (e.g. OC12)
- Interviews = IC (**I**nterview **C**ode) followed by the number allocated to the individual interviewed (e.g. IC21). **N.B.** Phase 1 interviews are indicated by numbers 1-40, Phase 2 interviews are indicated by numbers 41-67
- Focus Group Discussion = FG (**F**ocus **G**roup). Individual contributions to the narrative are not separately identified

Observation on wards

Direct observation was a key element of this study and the data collected, useful in itself, was also helpful in generating ideas and issues to be addressed in the subsequent interviews. This research was particularly fortunate in having good access to observe on wards, as to obtain such permission for healthcare settings is frequently a difficult process (Walshe et al, 2012; Morse, 2003).

Although underused and challenging in healthcare settings, (Savage, 2000; Walshe et al, 2012), observation has acknowledged importance in qualitative research, since reliance solely on interview data risks missing significant clues (Morse, 2003). Murphy and Dingwall (2007 p 2230), indeed, refer to it as the "*gold standard*" for the study of organisational processes[85]. Observation has unique value in offering insights not accessible from other data collection methods, since it illuminates structures, processes, and behaviours of which individual participants may be unaware or consider irrelevant (Morse, 2003; Morgan et al, 2017). It is also the only way in which

[85] although their implication that it is *more*, rather than *as*, important than any other qualitative method, especially interviewing, may be open to challenge since the whole point of using mixed methods research is that all approaches have their strengths and weaknesses and are most valuable when used together (Ritchie, 2013)

it is possible to see people interacting with each other in their daily existence, "*in the wild*", as Dingwall (1997 p 60) puts it.

There is some confusion in the literature about what the terms 'participant' and 'non-participant' observation indicate. Some authors (e.g. McCall and Simmons, 1969) argue that if an observer is present, regardless of their degree of involvement in any action, they should be seen as participating. Others, however, (e.g. Mays et al, 1995) make a distinction between 'participant as observer' and 'observer as participant' roles (Gold, 1958), reflecting the interchangeability of these roles in a real-life setting. The observer as participant role was the most suitable for this research as it was desired to impinge as little as possible on the work of the wards[86].

Interviews with staff

If observation can be said to be the gold standard for qualitative case study research, then interviews – "*the main road to multiple realities*" (Stake, 1995 p 64) and "*an essential source of case study evidence*" (Yin, 1984, 1989 p 90) – must surely be seen as its bedrock. The semi-structured in-depth interviews used in this study were seen as being both valuable in themselves and complementary to the observational data collected (Stake, ibid).

So-called 'conversations with a purpose' have been used as a research technique since at least the 19th century (Burgess, 1984 p 102) and, along with focus groups, interviews have become the most widely used method for gaining insight into other people's views of the issue under investigation (Wilkinson et al, 2004). The key reasons for the overwhelming dominance (Yin, 2015 p 141) of these modes of enquiry are encapsulated in this extract from Robert Weiss's book, "*Learning from Strangers*";

> *"... . Interviewing can inform us about the nature of social life. We can learn about the work of occupations and how people fashion careers, about cultures and the values they sponsor, and about the challenges people confront as they lead their lives. We can learn also, through interviewing, about people's interior experiences. We can learn what people perceived*

[86] Though on one or two occasions it was felt necessary in the interest of patient safety to inform staff of what had been observed

> *and how they interpreted their perceptions. We can learn how events affected their thoughts and feelings. ..."* (Weiss, 1995 p 1)

Focus group

Towards the end of the fieldwork it was suggested by the steering group that it would be valuable to access the views of more senior managers about their perceptions of risk in relation to staffing on wards through a general discussion at the end of a regular meeting. Group discussions or focus groups have been increasingly used as a method of qualitative research (Bloor et al, 2001), and Kitzinger (1995) offers a very straightforward rationale for the use of the method;

> *"when the interviewer has a series of open ended questions and wishes to encourage research participants to explore the issues of importance to them, in their own vocabulary, generating their own questions and pursuing their own priorities."* (Kitzinger, 1995 p 299)

Confusingly, the terms group discussion (or group interview) and focus group are often used interchangeably. However, many writers do draw distinctions between the two, mostly to do with the degree of interaction between participants (e.g. Kitzinger, 1995; Wilkinson et al, 2004 p 49; Finch and Lewis, 2013 p 171). Group discussions are seen as "*quick and convenient way to collect data from several people simultaneously*" (Kitzinger, ibid), while for focus groups the emphasis is at least as much, if not more, on recording and analysing the dynamics of the process (Caillaud and Flick, 2017).

The single group discussion carried out for this research did not fall neatly into either the "*quick and convenient*" (Kitzinger, 1995) category, or one which minutely examined how meanings are constructed and negotiated within a social context (Wilkinson et al, ibid). It did have many of the features which characterise a focus group, particularly as it comprised a group of people with a shared experience of ward management and the problems of staff shortages, and the data analysis of audio-recorded material looked for evidence, in particular, of the influence of group norms (Bloor et al, 2001 p 4). However, it was opportunistically convened and the group size (19) was in theory very far from ideal[87], since individual participation in large groups may be limited or even

[87] 4 to 8 participants would be usual (Wilkinson et al, 2004 p 48)

absent and there may be problems with transcribing overlapping conversations (Bloor et al, p 27-28). In addition it was found that notation and recording of non-verbal aspects of the group process which might have provided further insights was impossible in such a large group. It is thus probably best seen as a hybrid exemplifying the second approach suggested by Wilkinson et al (2004 p 48), one of "*facilitating the expression of individual ideas, beliefs, opinions etc., through interaction with others*.".

Examination of documents

Entries on the City Trust Datix system were a key source of documentary evidence in this study. The data collected feed into a central database of patient safety incident reports, the National Reporting and Learning System (NRLS). Statistically, such data are inaccurate and incomplete (NRLS, 2006) since they depend on a) recognition that an incident has occurred and b) on individual decisions about what to report and how to report it, or indeed whether to report anything at all. However, this study was not concerned with incident numbers, only with a particular type of incident, a sub-set of which comprised the reports accessed and analysed in Phase 2.

Documentary sources, largely national government reports and newspaper articles, were accessed to provide historical and contemporary contextual information, particularly useful where, as in this case, the issue of interest has an extended history (Ritchie and Lewis, 2013)[88]. They also provided support and validation for data collected through observation and interviews (Bhattacherjee, 2012). Documentary material may also yield unexpected clues to useful lines of enquiry (Stake, 1995 p 68).

4.2.4 The research process

This section begins with a table (Table 4.1) showing the different phases of the research, the methods used and the numbers of participants. It then goes on to describe these different phases in more detail.

[88] See Chapter 4 on the historical development of the 'patient safety' issue

Table 4.1: Phases of study: methods used and participants involved

Phases of Study	Methods	No. of sessions	Participants	No. of participants	Role Titles	Role nos.
Scoping Phase	Observations	64	Healthcare staff (opportunistically selected while working on one of 19 wards)	All visible staff on each ward	All roles represented	
Phase 1	Interviews	40	Healthcare staff (self-selected from all staff on three wards)	40	Ward manager Deputy Manager Senior Staff Nurse Staff Nurse Healthcare Assistant Ward Clerk	3 5 8 14 9 1
Phase 2	Interviews	27	Healthcare staff filing an adverse event report (reports selected by researcher, participants self selected from among these), plus one manager	27	Ward manager Deputy Manager Nurse Practitioner Senior Staff Nurse Staff Nurse Healthcare Assistant Doctor Manager	1 1 1 6 14 2 1 1
	Focus Group	1	Ward managers and other senior managers (most having worked on wards)	19	Ward Managers General Managers	

Observation on wards - Scoping Phase and Phase 1

During the scoping phase observational data were collected on a single occasion from 19 of the 25 wards on the two main hospital sites[89]. In Phase 1, three of the 23 adult wards[90] were randomly selected for more intensive study and were thus visited on more than one occasion. A further 45 observation sessions were conducted on these wards (see Table 4.2). All observation sessions varied in length, most lasted between 30 minutes and 2 hours with the exception that on Ward T, which had very few beds, nearly all sessions were shorter than average. In all 64 hours of observations were carried out.

Table 4.2: Observation sessions on wards

Wards	<1 hour	1<2 hours	2<3 hours	Total sessions
Initial observation sessions (including Wards S, N and T)	7	10	2	19
Further observation sessions				
Ward S	9	8	2	19
Ward N	5	5	1	11
Ward T	12	2	1	15
Total sessions	**33**	**25**	**6**	**64**

The 19 observation sessions in the Scoping Phase were carried out in the company of one of a number of different clinical educators, selected by the steering group, who were making a routine visit to that ward to observe staff at work. Access to these wards was organised by the educator involved, who briefly explained the research and the presence of the observer. For analysis, the data recorded on these occasions was included with the observational data collected from the three wards in Phase 1.

The Phase 1 observation sessions took place on Wards S, N, and T consecutively, and were conducted by the researcher alone. Prior to start of the fieldwork on each ward

[89] In the Scoping Phase the two paediatric wards were deliberately excluded, and four other wards were not visited for random reasons unconnected with the study.
[90] The individual characteristics of the three wards intensively studied in Phase 1 cannot be given in order to preserve anonymity. Collectively the three wards contained both male and female patients and dealt with both medical and surgical conditions.

access was negotiated by explaining the research to the ward manager and staff at a routine ward meeting and providing a written outline of the research (Figure 4.1) to be displayed on the staff notice board.

The observation sessions were conducted at different times of the day and night, and at weekends, with the aim of capturing data on staff behaviour during all the various shifts. Observations were recorded contemporaneously with no attempt being made to disguise the fact that data collection was taking place. Choice of where to stand and observe was limited to a few areas with a reasonably good view of a number of beds and staff activity, individual staff members were not followed around. To protect patient privacy, no attempt was made to enter side rooms or look behind closed curtains.

Figure 4.1: An anonymised version of the initial information given to ward staff

Trust-wide Service Evaluation Project

Over the last few months many of you will have had an opportunity to meet as she has made a visit to most wards in the company of one or other of the Clinical Educators to do some observations of care. This was the start of a service evaluation project that … (the researcher) is undertaking on behalf of the Trust and she will be working here over the next couple of years.

NAME

… (the researcher) is a research psychologist with many years experience of investigating organisational issues in the NHS. The project will focus on gaining an in-depth understanding of the routine work of caring for patients on the wards, how staff go about dealing with and prioritising the different tasks they have to carry out, and how they feel about the job they do.

For the next phase of the project … (the researcher) will be randomly selecting a number of wards at both hospitals and visiting them on a regular basis to get to know the staff team and the work of the ward. As well as doing more observations of care, she hopes to interview up to a dozen members of staff taken from all grades, but including if possible Ward Managers and at least one Consultant. The interviews will take place in private at times convenient to the staff members involved, will last about an hour, and will be completely confidential. No individual or ward will be identified in any project reports, and what is said at interview will not be passed on to any other person in a way which would identify the source. The Trust hopes very much that staff will feel able to take part in this project. However, everyone is completely free to decide whether or not they wish to be interviewed and if anyone does not wish to participate, no-one except themselves and … (the researcher), the project organiser, will know they have refused.

This type of in-depth service evaluation is rarely possible and the Trust feels that this is a unique opportunity for them to gain insight into the real workload of those caring for patients and how they feel about different aspects of the job they do. When the final report comes out each participating ward will receive a copy of the executive summary and the full text will be available to anyone on request. It is very much hoped that the knowledge gained will help to increase everyone's understanding of the needs and aspirations of staff and assist management in running the hospitals to everyone's best advantage.

Signed …… Date ……..
Director of Nursing

Contact for … (the researcher)
c/o … (X), PA to Director of Nursing
Tel: ……..65
email … (the researcher)@btinternet.com

Field-notes simply recorded as much as possible of what was happening at the time. These records were subject to both content and selection bias. First, it was not physically possible to record everything witnessed and the selection of what to record inevitably reflected the predisposition of the observer to notice some behaviours and ignore others[91]. However a deliberate attempt was made not to focus on specific issues such as patient safety or risk perception, with a view to avoiding pre-conceptions and biases imposed by the research design, particularly any pre-existing propositions (Yin, 2015 p 129).

McCall and Simmonds (1969 p 73) are critical of contemporaneous note taking, citing the inevitable failure to observe actions, gestures and facial expressions while writing notes, as well as the possible reactive effects on the behaviour of those being observed. While these are undoubtedly valid criticisms, their preferred option of *post hoc* recall of events was felt even more unsatisfactory as the researcher was not confident of being able to remember in sufficient detail, even if notes were written directly on exiting the field.

Recruitment of participants and management of interviews

Phase 1 participants

The research on each ward started with periods of observation, so that staff became familiar with the researcher before the start of interviews. After a few of these visits, every staff member on the ward was sent an information sheet about the research and offered opportunity to have time off to be interviewed in private during their working hours. Attached to the information sheet was a slip of paper asking the staff member to give their name, tick a box indicating whether or not they wished to be interviewed and to put the slip in a locked box on the ward. The researcher collected the slips during visits to the ward and then contacted those individuals who consented to arrange an interview. In this way, no-one knew who had declined to participate. Out

[91] This was particularly so in this case as the researcher originally trained as a nurse and would therefore be expected to identify more and/or different threats than someone without this specialist perspective.

of a total staff complement of 118 across the three wards in this phase 40 staff members (35 female, 5 male) agreed to be interviewed (see Table 4.3).

Table 4.3 Role titles of participants in Phase 1 interviews

Ward Manager	Deputy Manager	Senior Staff Nurse	Staff Nurse	Healthcare Assistant	Ward Clerk	Total
3	5	8	14	9	1	40

Phase 2 participants

To protect anonymity, selection of participants for this phase was more complex than for Phase 1. First, anonymised Datix entries logged under the category 'Inadequate levels of staff' were selected by the researcher. In all 192 specific incidents were selected on 19 occasions over the fieldwork period of 20 months. On each occasion all the incidents of this type logged in the preceding two or three weeks were accessed (so that participants could potentially be interviewed within a short time of the incident taking place). From these, non-random selection was made of up to five narratives which gave a good description of the event[92].

The Datix reference numbers for the selected incidents were then given to a senior member of staff in the risk management department who had access to the full data and was able to identify the staff members who had logged the incidents. The risk manager then contacted those individuals[93], gave them outline details of the research and asked if they would be happy to be contacted directly by the researcher. Contact was made with those that agreed[94], they were then asked again whether or not they wanted to participate and assured that the risk manager would not know whether or not they had agreed to take part[95]. A total of 27 staff members (one reporting on two

[92] On grounds that where few details were given staff members might have difficulty in retrospective recall.
[93] Of the number selected by the researcher to be approached; the risk manager was unable to contact some, a few (number unknown) refused, and some were not approached as a maximum of three were required for interview in each tranche to avoid a backlog.
[94] It is not known how many refused.
[95] It was felt that some potential participants could have felt unable to refuse when asked by the risk manager, in fact, only one individual opted out at that stage.

incidents (marked* in table) were ultimately interviewed as a result of this process, see Table 4.4 below. All but one were female.

Table 4.4: Selection of interviewees for Phase 2

Datix access point	Incidents initially selected	Interviews resulting from selection process	No of interviews
01	3	None	0
02	8	None	0
03	10	IC41	1
04	10	IC43	1
05	12	IC42	1
06.	14	IC48, IC45, IC44	3
07	35	IC46, IC47, IC49	3
08	16	None	0
09	22	None	0
10.	9	IC50, IC51, IC54	3
11	10	IC53, IC57, IC52	3
12	3	IC58, IC55*	2
13	5	IC56, IC59	2
14	3	IC60, IC61	2
15	5	IC65	1
16	9	IC63, IC64, IC62	3
17	5	None	0
18	12	IC66	1
19	1	IC67	1
Totals	**192**		**27**

Most of the 27 members of staff interviewed were qualified nurses, but two healthcare assistants, one doctor and one manager had also filled in Datix forms and agreed to participate (see Table 4.5).

Table 4.5: Job titles of participants in Phase 2 interviews

Ward Manager	Deputy Manager	Nurse Practitioner	Senior Staff Nurse	Staff Nurse	Healthcare Assistant	Doctor	Manager	Total
1	1	1	6	14	2	1	1	27

In addition to the interviews with staff who had submitted adverse event reports, one further interview (IC64) was conducted with a duty manager, and a focus group was

held, comprising 19 participants, all senior clinical and managerial staff who normally attended the "Ward Managers' Meeting".

Development of interview protocols for Phases 1 and 2[96]

Phase 1 interview protocols

The initial interview schedule was developed following review of the literature on risk perception, decision-making and patient safety, and in conjunction with members of the steering group. It used what Gall, Borg, and Gall (1996) call the general interview guide approach which, although it is semi-structured in listing a number of topics to be covered and suggesting some prompts, acts more as an *aide mémoire* (Burgess 1984 p 108), allowing flexibility in the wording and presentation of questions. While this does mean that narratives cannot be directly compared, for an exploratory study this disadvantage was outweighed by being able to follow up interesting points and also by allowing a more conversational style which participants tend to find less daunting (Turner, 2010).

Two slightly different interview protocols were used in this phase. The first, which was used for all interviews in Ward S, began by asking the participant to describe their typical working day, as it was felt desirable that, as far as possible, participants should not be led by questioning to consider specifically to what extent their actions could be attributed to risk perception. Questions are most effective when they are clearly pertinent to the interviewees own views or circumstances (Legard, Keegan, & Ward, 2013) and to this end participants were only told that the research related to developing an understanding of their work, how they managed and prioritised their tasks and how they coped with unexpected events.

Interviews began by requesting a detailed description of the participant's working day. It was hoped that this unprompted account would capture any risk perceptions which were salient to the member of staff and readily recalled, rather than having been

[96] See Appendix for copies of original schedules

triggered by questions designed to initiate thought about threats and the risks they posed, which formed the second part of the interview.

Sometimes this worked well, as in the following example:

> *"First of all I look at the opportunities, check who's meant to be on duty, check nobody's gone of sick, that way I can organise the staffing because if somebody has gone off sick and not been replaced then at least when we handover you'll know which side is the busier, where you need to allocate the staff."* (IC11)

However, more frequently participants' narratives simply listed their tasks and lacked a detailed account of the decision-making process involved. Analysis of these narratives, suggested a more fruitful approach (in terms of eliciting risk perceptions) might be to interview staff towards the end of their working day, and ask participants to describe that day's work, from the time they arrived for their shift until the interview took place, hoping that staff would then be more likely to be able to recall the thought processes preceding their behaviour. Interviews on Wards N and T were conducted in this way, however the revised strategy was only partially successful, with staff members varying considerably in the degree to which they were able to reflect on their behaviour during that shift.

There were three main problems, the first and most important was that some people did not readily articulate the reasoning behind their behaviour. In consequence, to avoid passing over instances where the actions reported appeared to be directly accountable to perceptions of risk the interviewer sometimes felt it appropriate to ask for an explanation. For instance, in the following extract from an interview the participant made a bald statement with little content. The interviewer then made a non-leading remark to prompt her to elaborate and then prompted again, this time in the form of a direct question based on the inference in the narrative. This in its turn elicited a clear indication of the perceived risk the original behaviour was undertaken to avoid.

> *"Participant: I went and checked on all my patients, did the observations and then it was lunch."*
>
> *Interviewer: When you say you checked up on your patients?*

> *Participant: I made sure that they all had glasses of water in front of them, that's what I like, that's my thing. I like to make sure they can reach a glass of water, tissues and everything they need. I do observations to make sure if they need to be elevated that they are elevated. I don't like to say go and do that, I like to go and do that.*
>
> *Interviewer: So you know they've been done?*
>
> *Participant: Yes because I'm the one that has to go and document it afterwards you see. You can't write down properly unless you've seen."* (IC09)

Secondly, the narrative was sometimes very sparse and the interviewer was aware that specific items which should have been there were not being recounted. In those instances the interviewer sometimes briefly prompted a participant's memory, as in the following example:

> *"Interviewer Did you do any writing in between times?*
>
> *Participant I have to write up What happens is you have to document because sometimes it's so busy you tend to forget what you did. So if I do something on a patient I have to document it straight away. So that I generally get on with my work and I'm happy and up to date with my record keeping."* (IC08)

The other problem was that individuals in Ward N and Ward T, who were interviewed using the revised schedule, sometimes slipped from recounting their actions that day into an account of what their day was generally like. Since the intention was to try to elicit a clear recollection of their thought processes at the time, participants were prompted to return to the day's happenings. This did not always work, so some of the interview data collected from those two wards was more comparable with the data collected from Ward S, relating to people's general perceptions of how they thought about their work.

Iterative probing (Legard et al, 2003) in the second part of the interview was designed to 'mine' (Kvale, 1996), information given by participants to try to identify how aspects of their work might be perceived as putting other people or participants themselves at risk. They included such matters as whether participants had felt under unusual pressure that day, or if anything had happened that worried them, as well as a

question about any adverse events they had been involved with and more general questions designed to elicit how their work affected their personal life.[97]

Phase 2 interview protocols

The development of the protocol for the Phase 2 interviews was similar to that undertaken for Phase 1, however, in the first part participants were asked to describe the day when the adverse event report had been filed, and they were given copies of what they had written in case they need to refresh their memories. Probes then focused on the decision to file a report, the circumstances surrounding that decision, their feelings and perceptions of risk at the time, and their views of their working life in general.

As with those conducted in Phase 1, the purpose of the interviews was to try to identify behaviour in response to perceived risk in (as far as possible) a non-directive way. Participants were asked first to recall and describe the specific incident which had prompted their filing of an adverse event report (they were also given copies of what they had written at the time). and to reflect on what they did and why. Prompts, where necessary, included asking what risks they had seen in the situation and if they were aware of making choices between different possible courses of action. They were also asked directly what they had anticipated would happen as a result of their report and if they had ever filed an adverse event report before. Finally, as in the previous schedule, there were a few questions about their views of working in the NHS generally and how their work might or might not impinge on their personal life. As before, participants varied in the degree to which they spontaneously articulated the thought processes behind their actions and hence in the amount of probing required.

[97] These questions were omitted or modified as seemed appropriate according to whether or not they had been covered during their descriptions of their working day. For instance, if a participant had already described a day in which they had felt under particular pressure, then they would not be asked to describe it a second time.

No specific protocol was used for the single interview with the general manager and the discussion focused on generic issues around decision-making and the prioritisation process in relation to staffing levels on wards.

As noted earlier, the focus group was convened opportunistically, with only a brief period in which to plan its conduct. It was decided to prime the discussion with a prepared vignette[98] giving a scenario of shortage of staff similar to those described by Phase 2 participants who had, under such circumstances, filed an adverse event report. The group were then asked to imagine themselves in that situation and discuss how they would feel about it and what they would be likely to do in those circumstances. It was hoped in this way to generate a discussion on the topic and to see to what extent the group's reaction to such a scenario was similar to or different from those given by the interviewees.

Despite the caveats mentioned earlier, in particular the large size of the group, it was felt that this was a successful exercise. Participants knew each other well and most people contributed to the discussion, appearing relaxed about both expressing their own views and contradicting those of others.

Conduct of interviews

All interviews were conducted in a private room either on the ward or, if requested in order to preserve complete anonymity, elsewhere in the hospital. Participants were able to choose both the venue and the time of the interview. In practice, most participants did not appear to be concerned whether or not their colleagues knew they were being interviewed and opted for the ward. The focus group was conducted with participants sitting round the table at the end of their regular meeting in the room usually used for that purpose.

[98] Vignette: "You're a ward manager, you've come on the ward first thing in the morning and you find that the two HCAs who were due to come on duty have not arrived. One of them rang in yesterday to say that they weren't coming but you were not told about it, the other one has just not turned up Your staff numbers were already below optimum level and the loss of these two takes you from amber to red RAG rating."

Before the interview started participants were given another copy of the information sheet and had opportunity to go through it and the consent form and ask any questions before the consent form was signed by both parties. Interviews lasted between half and three-quarters of an hour. They were digitally recorded with the participants prior consent (none of the participants in either phase refused)

Potential participants in the focus group were informed about the research in advance and all received a copy of the participant information sheet. At the end of their business meeting the details were explained again and people were given an opportunity to leave if they wished, no-one did so. Consent forms were then circulated and signed. The complete session was digitally recorded.

At the end of each interview and the focus group session participants were thanked for their help[99], reassured that neither their name, nor the ward they came from would be identified in any output from the research, and reminded that contact details were included on the information sheet should they subsequently wish to add to, alter, or withdraw any information they had given.

4.3 Data analysis

4.3.1 Principles of data analysis

The fundamental premise on which this research is based is that people's behaviour is modified by their assessment of and response to risks emanating from perceived threats in their environment. This premise is supported by what is now a vast literature on the subject (for a comprehensive overview see Breakwell, 2007, 2014), however, detailed descriptions and analyses of the processes by which such choices are recognised and made in real life situations are difficult to obtain (Njå & Rake, 2008) and hence less well documented. Data collection for this research was focused on obtaining detailed accounts of participants' perceptions of threats in their working

[99] Participants received no incentives to take part

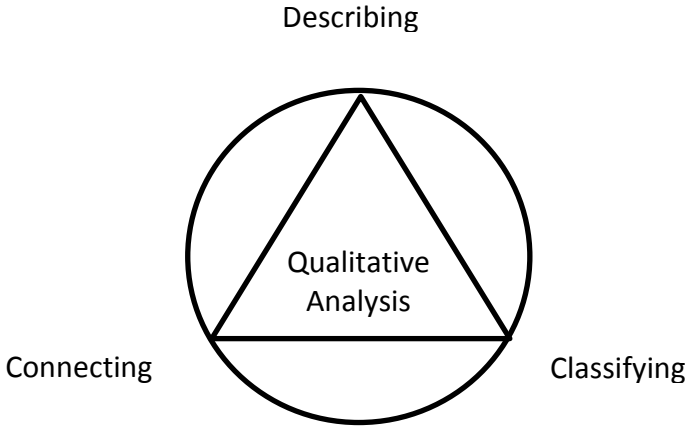
environment and the risks they posed, and subsequent analysis sought to identify the links between those perceptions and their subsequent behaviour.

Since the qualitative data collection process itself is less structured, and more flexible than its quantitative equivalent (Guest et al, 2007), methods used for data analysis should have similar characteristics. Choice was informed by the literature on those appropriate for data collected using an interpretivist, qualitative approach to identify and explain patterns in the data, why they have occurred and the nature and interrelationship of different contributory influences (Spencer et al, 2013 p 216). Glaser and Strauss (1967) were early and highly influential proponents of data analysis based on developing insights inductively from collected empirical material and their grounded theory approach has been called "*one of the most popular research designs in the world*" (Birks and Mills, 2015). Indeed, Turner (1998 p112) considered that "*the qualitative researcher has no real alternative to pursuing something close to grounded theory*".

However although, as Braun et al (2015) point out, all theoretical approaches share a common emphasis on how to categorise data and make connections between categories, grounded theory's constant comparative method for dealing with the data was not felt really suitable for this study. While its inductive approach is not fundamentally inconsistent with a research design that begins, as this does, with refutable propositions (Suddaby, 2006 p 636), the constant comparative method does focus strongly on induction and Richards and Richards (1994) warn that there may be a tendency to become distanced from the data as categories are developed and refined. Glaser and Strauss themselves conceded that no research is wholly inductive (Glaser and Strauss, 1967 p 2) and that any scientific approach requires "*an interplay between induction and deduction*" (Strauss and Corbin, 1998 p 137), and many others since have come to the same conclusion (e.g. Turner, 1988 p111; Dey 1993; Fereday et al, 2006, Joffe, 2012; Braun et al, 2015). Thus an approach described by Merton (1975 p 335) as "*disciplined eclecticism*" appears to sum up an increasing consensus amongst those conducting qualitative research. The interaction between deduction and induction is illustrated by the following quotation and diagram taken from Dey (1993):

> *"qualitative analysis requires a dialectic between ideas and data. We cannot analyse the data without ideas, but our ideas must be shaped and tested by the data we are analysing. In my view this dialectic informs qualitative analysis from the outset, making debates about whether to base analysis primarily on ideas (through deduction) or on the data (through induction) rather sterile."* (Dey, 1993 p7)

Figure 4.2: Qualitative analysis as a circular process (after Dey, 1993 p 32)



A method of dealing with data which appears to come close to this eclectic approach is thematic analysis. This was seen as particularly suitable for this study as it allows data to be coded both deductively and inductively (Joffe and Yardley, 2004 p 57) and is not tied to a particular theoretical outlook (Braun and Clarke, 2006; Joffe, 2012). The data analysis process roughly followed the six recursive phases identified by Braun and Clarke (2006), starting with familiarisation with the field-notes and transcripts of interviews, and proceeding through various iterations of coding and re-coding as both expected and unexpected themes emerged from the data and were further suggested by re-reviewing the literature.

4.3.2 Development of themes

Preliminary observational data analysis

The raw field-notes recorded staff behaviour during the period of observation in as much detail as possible. Preliminary analysis focused on identifying multiple threats in the environment which might have affected selection and choice of action. Hence

these data were scrutinised to try to identify instances of behaviour in response to perceived threats.

Much of the behaviour recorded was not subsequently used in the analysis. This does not mean that these behaviours were not prompted by risk perception, indeed the whole argument of this thesis is based on the premise that all behaviour may be seen as contingent upon risk perception and its avoidance[100]. It merely means that the process by which threats were perceived and risk evaluated and acted upon was not obvious to the observer. Indeed, it is likely that the staff themselves were not consciously aware of this process at the time. Nevertheless, since the intention was only to try to demonstrate the presence of multiple threats, not their prevalence, a large amount of potentially useful material was collected (See Table 4.6 below).

Table 4.6 Instances of observed behaviour thought to be prompted by risk perception

Wards	Instances recorded
Initial observation sessions (including Wards S, N and T)	33
Further observation sessions	
Ward S	36
Ward N	22
Ward T	29
Totals	**120**

Possible themes derived from the 33 instances recorded during the visits to wards during the Scoping Phase were discussed with the steering group[101], and their views assisted in the identification and subsequent development of themes from the observations and interviews in Phase 1 and the interviews in Phase 2.

[100] For instance, it can be contended that most routine nursing procedures are directed towards avoidance of harm to patients

[101] These data were carefully anonymised so that individuals or wards were not identifiable to group members

Interview data analysis

All 67 interviews and the focus group session were digitally recorded and professionally transcribed. Transcriptions were read and verified with the original audio recordings. The narratives were then examined for evidence of both conscious and non-conscious recognition of threats and perception of risks as well as for reported behaviour, and frequently occurring patterns and themes identified. The data were thus analysed both in terms of their semantic, or manifest, content, and at a more latent, interpretive level in terms of the ideas, assumptions, and conceptualisations which appeared to underlie the documented accounts and descriptions (Joffe and Yardley, 2004; Joffe, 2012;.Braun and Clarke, 2006; Braun et al, 2015; Terry et al, 2017).

Further analysis

As predicted by proposition 1a, "*that individuals identify multiple, qualitatively different threats in their environments",* preliminary content analyses yielded a large number of items apparently linking observed or reported behaviour in some way to recognition of many different threats and perception of risks. Items only become threats if they have potential to harm something or someone, as is made clear by the definition of a threat as "*a person or thing likely to cause damage or danger*" (Oxford Online Dictionary 2018 https://en.oxforddictionaries.com/definition/threat), so analysis needed to differentiate between the listed items according to what or who they threatened. The initial categories to emerge from the data were 1) those threats seen as posing risks to other people or organisational entities and 2) those appearing to pose risks to the individual staff member who was either the focus of an observation or was being interviewed.

Table 4.7 (below) shows the results of this preliminary categorisation.

Table 4.7: Threats relating to others (patients, colleagues or the organisation) or to the individual, by type of threat and frequency of citation.

Focus of threat	Different types of threat	Times cited
Others		
Patients	132	376
Colleagues	10	51
Organisation	9	25
Self	45	164
Total	**196**	**616**

Individuals' instinctive reaction faced with multiple perceived threats is to assess the risks they pose and respond to them in order of importance (Fischoff et al, 1979, Breakwell, 2014 p 35). Hence, proposition 1b anticipated that the data would show evidence that for an individual in such a situation the resulting decision process would "*prioritise the most salient [threat] for a behavioural response*". The concept of salience is thus premised on decisions being based both on comparison of the features of different options (Bordallo et al, 2015), and also on how they are evaluated by the individual (e.g. Eiser and van der Pligt, 1988; Arvai et al, 2001; Hansson, 2005; Aven, 2009).

The usual way of considering how salience affects behaviour is to identify the goals[102] towards which the behaviour is directed. Thus, for behaviour in response to perceived risk, the conventional approach is to focus on how people choose between desirable outcomes[103]. However, identification of themes for this study followed a novel conceptual approach which considered decision-making and behaviour from a perspective focused on determining what undesirable outcomes were being avoided. This is not to dismiss the utility of a perspective based on examining motivation or risk-reward structures, but instead to recognise the duality of the processes involved[104].

[102] Defined as internal representations of desired states (Austin and Vancouver 1996)
[103] For example: Expected Utility Theory (Bernoulli, 1738); Expectancy Theory (Vroom, 1964); and Prospect Theory (Kahneman and Tversky, 1979)).
[104] Described by O'Doherty et al (2017) as the need to act both to maximise the chance of obtaining what is desirable while also minimising the possibility of encountering harm.

Hence this analysis simply takes one perspective, harm reduction, rather than the other, motivation, as being more helpful in increasing sensitivity to behaviour resulting from the assessment and ranking of multiple perceived threats.

An essential aspect of the analysis was thus to identify themes in the data illustrating how behavioural choices were affected by the nature and rating of the identified threats. A framework was needed to further categorise the data into different types of threat which might potentially vary in their importance for the individual decision-maker, and a modification of Maslow's hierarchy of needs (Maslow, 1943) was utilised for this purpose. Maslow's influential theory of motivation (Maslow, ibid) identifies (originally five and later six[105]) different types of valued outcomes with varying degrees of salience. Many since have elaborated on this theory (for an overview see Chulef et al, 2001), but none have seriously questioned the validity of the categories Maslow identified and his classification still stands as a strong statement regarding the structure of human motivation (Koltko-Rivera (1996 p 303).

Figure 4.3 shows the semantic adaptation of Maslow's categories to reflect threat avoidance rather than outcome desirability. Maslow conceptualised the different motivational categories in his framework as a hierarchy, ranked from the bottom (physiological needs) to the top (self actualisation/self transcendence) in order of assumed importance to an individual. He theorised that it was necessary for "lower" needs to be satisfied before individuals could attend to "higher" needs (Maslow 1943, 1948). It should be noted however that the adaptation of Maslow's categories used to assist the analysis of the data presented in this thesis does not assume such hierarchical ordering[106].

[105] See Koltko-Revera (1996) for an explanation of this addition

[106] Indeed as will be seen in succeeding chapters the empirical evidence suggests that ordering is not invariate, but linked to the assessed importance and imminence of the threat.

Figure 4.3: Maslow's hierarchy of needs (1943), described by Koltko-Revira (1996) and adapted by Bennett (2015)

Maslow (1948)	**Koltko-Rivera (2006)**	**Bennett (2015)**
Motivational level	**Description of person at this level**	
5&6) Self-actualization/Self-transcendence	Seeks fulfilment of personal potential/Seeks to further a cause beyond the self (a). and to experience a communion beyond the boundaries of the self (b)	Threats to self-image (valued attributes of personality e.g. kindness to and care for others, unselfishness)
4) Esteem needs	Seeks esteem through recognition or achievement	Threats to public persona
3) Belongingness and love needs	Seeks affiliation with a group	Threats to personal relationships
2) Safety needs	Seeks security through order and law	Threats to preferred way of life
1) Physiological (survival) needs	Seeks to obtain the basic necessities of life	Threats to physical and mental health

4.4 Summary and concluding remarks

This chapter described the methods used to carry out the empirical research presented in this thesis and to collect and analyse the data. It argued the appropriateness of addressing the research questions through a single case study design, and using both inductive and deductive qualitative methods within an overall interpretivist approach. The ethical issues encountered and how they were resolved were indicated and issues regarding participant observation at the research sites and selection of staff for interview were addressed. Finally explanation was given of the approach taken to data analysis and key aspects of that process described.

In addition to the above, details were given of the antecedent circumstances informing the framing of the research questions and the initial research process to allow the evaluationof the "*merits and limitations*" (Marks and Yardley, 2004 p 18) of the research and the likely quality of its results and conclusions.

One important limitation relates to any possible generalisability of the findings. As well as the non-random nature of the case selection, the selection processes followed for potential informants allowed many healthcare staff to opt out of the study, and it was not in most cases possible to determine why they declined to take part. Although the process was designed to reassure individuals that they would not be identified as participating, some might still have been unsure that the process was wholly anonymous. Another, and potentially very important, source of bias was that what was essentially self-selection may have favoured those staff members who felt they had an axe to grind, rather than those who were satisfied with the situation, thus affecting the extent to which their comments could be seen as representative of healthcare staff as a whole. This was particularly true for Phase 2 participants since, by filing an adverse event report, they had already signalled that they felt something was wrong[107].

[107] For further discussion of this point in relation to the findings of the study see Chapter 8.

Chapter 5: Surrounded by threats: staff perceptions of risk in their working environment[108]

Chapter 3 began the compilation of evidence concerning the links between risk perception and behaviour. It considered the historical development of perceptions of risk in relation to the delivery of healthcare, the institutionalisation of national policy regarding 'patient safety', and various modifications of national and local perceptions of the importance of the issue in response to other perceived threats in the environment.

The next three chapters continue the process by examining the empirical data collected during Phases 1 and 2 of the research. This first chapter considers observation, interview and focus group material concerning the different types of threats experienced by ward-based staff in a district general hospital during a normal working day. The following chapter looks more closely at how the behaviour of individuals appeared to be modified by their perceptions of the risks posed by these threats and considers the decision-making processes which lead to selection of a focal risk and then determine response behaviour. The final chapter in this group focuses on variation in perceptions of risk in changing circumstances and over time.

The categorisation and analysis of data in all these chapters follows Breakwell's (2014 p 11) useful 'Framework for Social Psychological Analysis (1994, 2014)', in addressing a wide variety of possible influences on risk perception and decision-making, "*the spectrum of factors that interact from the intra-psychic individual level to the societal structural level*" (Breakwell, ibid), in an effort to explain individual action. In particular, the influence of cognition and emotion, what Breakwell (following McDougall, 1914) terms "*cognitive, conative and oretic processes*" is seen as crucial to the argument developed in this thesis concerning the links between risk perception and behaviour. All inferences about processes internal to the individual are necessarily speculative.

[108] NB The source of the examples in each section, whether from the observation sessions (OC), or from the Phase 1 and 2 interviews (IC) is noted in brackets. Phase 1 interviews are numbered from 1-40, Phase 2 interviews from 41-67.

Nevertheless it is argued that the observational and interview data detailed in these chapters offer evidential clues to such processes and can be shown to resonate with aspects of the social and psychological literature (to be discussed in Chapter 8).

The two main sections in this first of the three empirical chapters consider the data collected relating to staff perceptions of multiple threats in their working environment. The first section is concerned with aspects of their working environment which staff interviewed for this research identified as posing threats to other people, or in some cases to a collective 'other', the Trust which employed them. The following section focuses on things seen as threatening the well being of the staff members themselves.

5.1 Multiple perceived threats to others

5.1.1 Threats to patients

Inadequate staffing: a perceived global threat to patient welfare

A large majority of the comments and behaviours observed and recorded at interview related to perceived threats to the safety and care of patients. Furthermore, while staff identified many different discrete types of safety issue, they did not see these in a vacuum but were inclined to attribute both incidence and prevalence to what they perceived as a much greater, if more generalised, threat to patient welfare, based on the perception that their collective requirements were likely to be greater than could be met with the staff numbers available. As is illustrated by the quotes from Phase 1 interviewees below, this was as true of them as of those in Phase 2, who were deliberately selected because they had filed a report citing shortage of staff as an adverse event.

> *"you haven't got any extra hands to do things and that's when people fall over, you know, and have accidents."* (IC25)

> *"adverse events with falls is our top adverse event and that could be related to staffing particularly at night because our staffing levels are quite low at night for our dependency. So I think it does have a direct correlation" (IC19)*

> *"there's such a risk of people making drug errors because ... nurses get so harassed and there's so much going on."* (IC07)

Indeed, without exception, all staff interviewed for this study, as well as members of the focus group, attributed a global perceived threat to comprehensive patient care to a shortage of staff.

> *"we just don't have enough staff"* (IC20)

> *"There's not enough people on the ward, that makes it really hard. Really, you know getting all the cares done"* (IC40)

> *"I've stayed here till seven/eight o'clock at night because I've got no staff"* (FG)

Amongst anxieties about overall numbers of healthcare staff available a number of participants also mentioned concerns about having the wrong 'skill mix', a less obvious issue than a simple shortage of workforce, but meaning that there were insufficient professionally qualified nursing staff to carry out all the required procedures and treatments.

> *"patient safety is obviously paramount, ensuring there is enough staff to look after patients and that patients are being looked after correctly and staff have got the skills to do that"*(IC19)

While most of these quotes relate to a shortfall of nursing staff, there were also a number of comments about a shortage of doctors, leading to delays in dealing with patients' needs.

> *"my main concern is that we simply don't have enough medical staff to cover ... (X ward) safely"* (IC41)

> *"I would say that they (doctors) have the same kinds of concerns because there's only two of them to see fifteen patients each or whatever it is they've got to see"* (FG)

The observational data collected also supported many of the assertions made by interviewees. Although it was not possible to say from direct observation that there was a shortage of staff, at no time was any member of staff seen to be other than fully occupied, nor was anyone observed in conversation about anything other than work

related topics[109]. Such observations suggest that at the very least there was no over-provision, and there were possible indications of under-provision. For instance: two wards were housing extra patient beds with no increase in the complement of nursing staff; on a number of occasions senior staff were overheard arguing with managers that they needed more help, or ringing round off-duty staff to see if they could do extra hours; patients' bells would often ring for long periods before being answered; and doctors were frequently observed doing a round on their own, apparently because no nurse was free to accompany them. This last practice was confirmed by a couple of participants:

> *"when the doctors are on the ward round they want a nurse to go round with them, and on a good day that can be impossible sometimes, never mind when we're down to such minimum staffing."* (IC47)

> *"Supporting the consultants' ward rounds which we're supposed to do. ... That was one of the first things to go, I think, definitely, I'd say "I haven't got enough staff, you'll have to do it yourselves and feed it back to us at the end."* (FG)

A number of staff illustrated their perception of a chronic staffing problem with reference to what are known as RAG (Red, Amber, Green) ratings, a ranking system applied throughout the hospital to indicate if wards were short of staff. This was supposed to allow rapid deployment of staff to where they were most needed and trigger procurement of extra staff to cover any shortfall. However, the system appeared to be failing, with the perception being that a 'green' staff complement was not only rare, but seen as a reason for re-deploying staff elsewhere.

> *"they run the numbers on amber staffing which is the minimum. So then if somebody goes off sick, one person goes off sick, you then, if you go in to red, so then the coordinator needs to take patients. ... So it only needs to take one person to go off sick and then the coordinator needs to take some patients. ... I mean in some cases we do have the staffing at green but that's not very, very often. It's normally just red and amber"* (IC46)

> *"We're always either on an amber – if we're green which is a normal rating, rag rating, they take our staff from us and take, and redeploy them elsewhere to another ward"* (IC58)

[109] Although it is of course possible that being observed had an effect on staff behaviour

Adverse events attributed to staff shortages

As well as voicing their concern about the generalised threat to patients from perceived staff shortages participants mentioned a large number of other more specific threats posing a risk to patients. For instance 27 participants specifically mentioned the threat of patients falling, "*falls is our top adverse event*" (IC19); and 19 referred to medication errors of one sort or another. Another specific threat was the danger of cross infection. This was referred to by 21 people, nine of whom specifically named the threat of MRSA, which at the time was the most high profile hospital acquired infection. A further frequently mentioned threat was the physical layout of the wards, which in many cases made continuous observation of patients' condition very difficult. Indeed the hospital had introduced a chart that had to be signed by staff confirming that they had looked at every patient at least once in the previous hour.

> *"we're having to go round looking in on the patients, making sure they're breathing, they're too far away, you can't hear them fall"* (IC58)

Staff were clear that despite this directive the risk of harm remained.

> *"You can't always keep an eye on all of them (the patients) at the same time with the rooms being separate. And they're good, obviously they're very good for infection control and people's pride and privacy and stuff and, but as a nurse, if you have a ward you can see everybody"* (IC50)

> *"Some of the patient can just fall without us knowing, some patients can actually die, you know, without us knowing because we can't see them."* (IC57)

The threat of poor quality care

As well as adverse events, which would normally be recorded on Datix (the hospital database), participants also cited numerous other shortcomings in the quality of the care they provided for patients, from failing to attend to personal hygiene to not giving medication on time . These were not in general logged as specific harmful events, though they were seen as due to having insufficient staff and could, therefore have been entered on the Datix system under that category:

> *"you haven't got time to do the things that you'd like to do ...You know like bathing people "* (IC23)

> *"giving medication late, because we can't do eight patients at the same time ... Sometimes you have to choose between feeding patients and giving them medication".*(IC43)

> *"If a wound is dressed and you think it needs doing, unfortunately sometimes you just don't have time to do it. Even if you see it's leaked through and you know it needs to be changed"* (IC33)

Both observation and interview material indicated that ward-based staff were very aware of numerous threats to the wellbeing of the patients in their care, and that they attributed many of these specific threats to a more global threat of insufficient staff being available to deliver the standard of care they considered acceptable.

5.1.2 Threats to other staff

While threats to patients were pre-eminent, concerns about the safety or well-being of colleagues were also recorded during observation sessions and mentioned by large numbers of staff at interview.

Physical injury and mental health

Many participants identified illness and injury as presenting a threat both to other staff and themselves. Perceived risks of physical injury to others recorded during observation sessions included a duty manager reporting that she had had to send help to protect the staff when a patient "*went berserk*" (OC04); a complaint that nurses were having to bend to care for patients because electric beds were not operative (OC48); and a nurse preventing another nurse from moving a heavy mattress by herself (OC32).

A number of interviewees also made comments about the possibility of staff hurting themselves in one way or another through caring for patients.

> *"we seem to have a lot of back injuries but I think it's because partly our patients tend to be large and immobile and don't help, so lifting wise I think we go through phases when it's really heavy and we do have a lot of adverse events"* (IC16)

> *"safety, the no lifting policy you know all the general normal things in the manhandling policy, we're not allowed to lift patients"* (IC31)

In addition, participants reported staff being hit or otherwise abused by patients or their relatives.

> *"the patients are elderly, a lot of them have got some type of dementia and a lot of them, well no not a lot of them, some of them can be quite violent. ... Verbally and physically* (IC37)

> *"... (we get hit by patients) ok the patients are confused but ... Its not nice, no, sometimes we get a lot of abuse from relatives as well and that isn't nice* (IC31)

Participants also identified a threat to the physical well-being of staff of having insufficient time for rest and relaxation during their working day,

> *"We do go for lunch but I would say, at the moment it's quite strained with the current staffing,... sometimes ... they maybe have had to go for just 10 minutes or just come here (the nursing station), have a drink and then get back because it's very busy"* (IC22)

> *"under the Health and Safety Act you need to be able to have a break and ... [the workload] means there is no opportunity for a break. You are working flat out...and I was concerned about fatigue."* (IC55)

> *"team morale goes down hugely when there's a shortness of staff because you're run ragged, you're not getting your breaks which you know you're entitled to"* (IC62)

Some senior staff talked of having to make arrangements to cover nurses who were off sick. Those participants did not directly attribute this to the workload but a number of other staff did so:

> *"They complain about the sickness levels, and we're all burnt out because we're always struggling, we're always overstretched, we're always stressed and tired because we're doing far too much"* (IC58)

> *"there's so much sickness out there, there so much, you know, people thinking "oh I'll have to ring in sick because I just don't think I can cope today""* (IC67)

although one participant did not see staff taking sick leave as attributable directly to the workload, but to the more nebulous concept of the 'happy' workplace.

> *"A happy ward with a good boss, you don't get sickers. This place never gets sickers " (IC07)*

Interestingly, the data also indicated that participants, senior staff in particular, saw a clear connection between the welfare of staff and their frequently articulated concerns (noted earlier) for patient safety and the quality of care being delivered.

> *"a lot of them are working twelve hours with no lunch break, very little in the way of nipping out and having a cup of tea, even just, you know, grabbing a quick drink. So how safe does that make them at the end of a twelve-hour shift"* (IC65)

> *"there is the chance that nurses under pressure will make more mistakes so that does worry me if they're pushed, pushed and pushed and not manage to get their breaks and things like that and they are going to make mistakes, that does worry me"* (IC19)

> *"(if nurses are) under pressure to get a certain amount of jobs done, that could result in a patient being seriously harmed"* (IC47)

Complaints and reprimands

Other types of identified threats to staff included the perceived risk of complaints about the care given to patients.

> *"you get patients' relatives that will come and complain to you"* (IC52)

> *"I look at the possibility that can be, you know, that can fire a complaint against us as well that we don't look after them"* (IC57)

and a ward sister was observed telling staff to write down everything a patient ate because a relative was concerned that a patient was not getting enough food (OC45)

Another threat was that of possible consequences from contravening rules or failing to complete bureaucratic tasks. For instance a staff nurse was observed handing a tin of sweets around to staff saying "*If Infection Control appears I'll put them under the desk!*" (OC62). Being censured for not completing all the necessary paperwork as well as looking after patients was also frequently cited.

> *"people complain about your paperwork, but I've said that I've been busy and I've documented everything that needed to be documented" (IC25)*

> *"you're in a catch twenty-two, which comes first, the patient or the paperwork? ... Now I'm old-fashioned and I think the patient, but if you don't get your paperwork up to date you get your wrist slapped" (IC61)*

Staff might also be reprimanded by senior staff for putting their own needs or wishes before those of patients, as these comments from ward managers suggested.

> *"when I'm busy I don't want them to sit down on the nurse's station and read anything or just have a drink or anything. They can, they are allowed to have a drink but on their break or they can drink when it is quiet." (IC02)*

> *"if that wound needed to be looked at, I'll be finding out why it hasn't been looked at. I'm a bit of a disciplinarian as well when it's needed" (IC20)*

In addition, it seemed that junior staff in particular might feel that they should not disturb other higher status staff, even though they have no evidence to suppose that they would be reprimanded for doing so, as suggested by the following comment from a healthcare assistant.

> *"they say go and ask the trained staff but they're busy with doctors or relatives or doing what trained staff do. You can't always keep butting in" (IC27)*

The prevalence of the perception that their behaviour might be under scrutiny and possibly found wanting was evident from some staff reactions to the presence of the researcher. Despite assurances to the contrary, some staff appeared to believe the observer to be carrying out some form of evaluation of working practices. Here the threat was clearly that of receiving some form of sanction after findings were reported. Hence the comment from a ward sister that staff were sceptical about the research and thought it was something to do with management making cuts (OC50); from one doctor who asked "*Is it the efficiency survey?*" and another who said was it a "*time and motion*" study (OC56); and, on a different occasion, a consultant's comment "*Are you here again – measuring efficiency?*" (OC57). More comments in the same vein were a nurse saying she would be "*on my best behaviour*" (OC16), a doctor asking "*have I got a gold star yet?*" (OC56); comment from an occupational therapist coming into the ward "*Oh, you're here, I hope you're giving us a good write up* " (OC43); and a nurse enquiring "*have we worked hard enough for you today?*" (OC60). In addition, some interviewees were noticeably cautious about recounting the behaviour of colleagues to

the interviewer, presumably fearing their comments being repeated. One nurse made a direct request that what she said would not be noted (OC56).

Inadequate training

Senior staff, who have the task of allocating work, may also be concerned to ensure that junior staff do not miss opportunities to improve their skills,

> *"today we've got ... three people, two are basically pre-registration students and one is a new staff nurse. So they need to work with somebody and obviously they have to get their skills up So bearing that in mind, we allocated the patients."* (IC12)

> *"If we've got students on the ward, I'll ...leave ... (those patients) till the end because admissions are an important part of their learning"* (IC11)

although, as one participant pointed out, improving their skills could also be seen as a threat by some staff because of a perceived risk of litigation.

> *"a lot of nurses now won't expand their skills because they're scared if they do something wrong that they're going to get sued for it so they keep within a comfort zone of what they know, and they're like you know opportunities are out there because now you know you can take on more roles but a lot of good nurses won't because they're scared and that's how society has made us and all this litigation and the NHS trying to cover themselves "* (IC07)

5.1.3 Threats to the organisation

As well as threats to patients and other staff, many participants also indicated their awareness of issues which might adversely affect aspects of the organisation. Essentially these could be grouped into three categories. The first involved matters affecting the functioning of the hospital in terms of its primary objective, treating patients. This included the smooth operation of wards and the requirements of different departments. The second related to City Trust's parlous financial position. The third, more nebulous, type of threat concerned anxieties about the reputation of City Trust and by extension the NHS itself.

Organisational and financial threats

Although theoretically separate, in practice the first two were frequently spoken of in conjunction, since it was clear that for many participants, the way the hospital functioned was inextricably connected to its financial situation. Hence ward managers and their deputies who carried managerial as well as nursing responsibilities frequently mentioned the need to ensure they could run the ward efficiently and had enough staff, but often bracketed this with comments about trying to save money.

> *"So we're keeping the day room on hand because it's a cheap option isn't it and it's not just mine, its day rooms throughout the Trust"* (IC11)

> *"everything is so much budget-related, establishment-related and people are reluctant to put out to agency because of the cost. So therefore because they're not putting them out to agency, it's down to us more to actually move the existing staff to make it safer across the board"* (IC64)

> *"I think [the Ward Manager] is now not replacing staff. S/he's told us that, s/he's not replacing them, if you're short s/he's not replacing ... [because of] cost, and if you're off sick you're, you know, you just leave your colleagues short. ... [the Ward Manger's] supposed to come in under budget and s/he always does, but s/he runs the ward really short all the time."* (IC52 - edited to preserve anonymity)

> *"at the moment within the Trust, I think because of the financial pressures, there's an awful lot of pressures on individuals"* (IC49)

Evidence of awareness of financial threats to the organisation itself was also noted during observation sessions. This included comments from staff about cancelled operations causing patients to be 'starved' two days in a row (OC45); concern expressed by a ward manager about potential lack of medical cover following doctors leaving and no new appointees in view (OC20); and numerous comments by nurses about being kept short of staff (e.g. OC29, OC35, OC56). On one ward, adult patients were being nursed in bays designed for children's beds. There, a staff nurse complained that the lack of space "*like nursing in a shoe box*" was putting patients at risk but was tolerated because surgical patients "*bring in the money*" and the hospital was desperately short of funds (OC05).

Participants were also aware of various targets externally imposed by the Department of Health, such as provision of regular statistical information and responding to

complaints. These, if not met, could attract financial penalties. A number of participants particularly mentioned the perceived need not to breach the four hour target for patients wait in A&E.

> *"with the four hour wait in casualty ... I understand that they're under pressure to get patients up* (IC01)

> *"people are phoning up saying "how many beds do you have?" and you're saying "we haven't got any" – "well we've got four down in A and E that are going to breach in half an hour, you need to make beds"* (IC51)

> *"it's difficult when you have scenarios such as we've got a risk going on in A and E where you've got people on trolleys and ... ambulances backed up who can't get back on the road"* (FG)

Though, as one participant pointed out, avoiding a threat to one part of the organisation could sometimes increase the risk to another.

> *"they've got certain protocols to follow and they (A&E) sort of sometimes try and bypass that (by trying to send patients up to the ward) and it's like "yes, I know you're busy but we're just as busy up here, you know, we're not sitting around doing nothing" ... and it's like "well you're just bypassing your four-hour wait."* (IC03)

Reputational threats

The third category concerned awareness of threats to the reputation of the Trust and/or the NHS. At the time of the fieldwork there was great media fuelled public anxiety about cleanliness in hospital and its possible relationship to hospital acquired infections, as well as news stories about lack of care for patients, in particular increasing publicity about the problems at Mid Staffordshire Trust (e.g. The Telegraph, 2013). A number of both junior and senior staff bemoaned unfair representation of the health service by the media.

> *"you've not just got finance, you've also got reputational risk as well, you know, out there if you say you work for the NHS, well that's it, you're responsible for everything."* (FG)

> *"It's always the hospitals fault, ... but people can have it [MRSA] in nursing homes and places like that. ... its something that's got a very bad impression of the NHS through the press. ... it's just so slanted against the NHS "* (IC01)

> *"you hear lots of bad things about NHS and usually they appear on TV and papers, usually from a bad side"* (IC06)

One member of the focus group also posited an interesting link between all these categories of organisational threat. The suggestion was that if City Trust was unable to provide adequate care to its patients, this would damage its reputation, leading to patients choosing to go elsewhere for their care and hospital finances would suffer.

> *"the risks for reputation is of interest as well because if we're not getting it right, if the staffing is not as it should have been, then the Trust's reputation then goes down the hill. ... [patients] can now choose where they go to have their care, and that again impacts our finance. I mean to go to the worst case scenario, ... [if] you can actually get your operation done at ... [another local hospital] and at ... [City Trust] it's cancelled that often, you're not getting on there. So the financial aspects are even worse"* (FG)

The data thus support the proposition that hospital staff can identify and articulate many different threats to others in their environment. While most of these related to patients and other staff, there was also evidence of awareness of threats relevant to the welfare of their organisation. Importantly, there was a general perception amongst participants that many individual threats were subsumed by a single, more generalised threat to patient safety of having inadequate numbers of staff available to care for them appropriately.

5.2 Multiple perceived threats to self

This section focuses on things seen as threatening to the participant staff members themselves, and to people and things important to them in their personal lives. These included threats to their physical and mental health, to their lifestyle and livelihood, to their personal relationships, to the way they were perceived by others and to their own self-concept. The emotional as well as cognitive aspects of risk perception were particularly evident in participants' descriptions of threats which directly affect their own well-being.

While referring to threats rather than motivations, these categories are loosely based on and roughly correspond to the conceptualisations in Maslow's hierarchy of needs (Maslow, 1943, 1954; Koltko-Revira, 2006). Unlike that original theorisation, however,

no category was viewed as taking automatic precedence over another[110]. Some aspects of these groupings will be addressed in detail in Chapter 8.

5.2.1 Threats to physical and mental health

Participants perceived various threats to their physical and mental health which were, or could be, present in their working environment. Such threats included the perceived risk of being physically assaulted and several instances of physical violence to themselves were directly cited by participants.

> *"the patients ... some of them can be quite violent. ... Verbally and physically, and verbally I can just turn off, but physically its, you know I just turn round and say "why do I do this job.". I think "well, I come in here to be thumped." I'm not trained for that"* (IC37)

> *"I was assaulted by a patient weeks before my surgery ... she took the limb that was injured and snapped it back."* (IC55)

Another threat was the possibility of injury from using unsatisfactory equipment. Participants mentioned such things as a shortage of low beds meaning that patients at risk of climbing over cot sides and hurting themselves had to be nursed on the floor.

> *"we had to lay somebody on a mattress a few weeks ago. Me and another nurse were trying to change her in the morning and we both hurt ourselves trying to walk about on mattresses that the patient was on"* (IC23)

Nurses were supposed to use hoists for lifting patients to avoid back injury but these could also be in short supply.

> *"we were trying to get him back in to bed in the afternoon but couldn't. So we found a hoist which obviously only stands you up and sits you on the edge of the bed, it's not like the big hoist that gets you in properly"* (IC03)

A number of participants specifically mentioned that they sometimes had difficulty in getting enough to drink during busy periods.

> *" when it's so busy, it drains people and everyone complains about headaches ... they say, "oh just go and get a drink" but it's difficult and you*

[110] For further details of the thinking behind this classification see Figure 4.3

> *tend to ... get so engrossed in what you're doing and then you realise, "oh I never did get that drink."."* (IC17)

> *"to be honest, you know, I never had headaches before but after starting in this hospital, I do have headaches most of the time. Because of the workload here, it's really heavy, and you don't even have time to drink water or anything and it's just getting like, you know, you need hydration, that's what I mean."* (IC59)

Three participants directly attributed physical health problems to the stress of their working environment, one ascribed her illness to not being able to eat at regular times.

> *"I got so stressed out. I developed IBS, irritable bowel, so I was getting quite stressed out and quite a lot of problems with that. ... because I found I wasn't eating at regular times and it was really messing my system up "* (IC33)

The other two described leaving at the end of a shift feeling generally physically debilitated by the stressful conditions in which they worked.

> *"At times it's too much, ... it's like the workload, the number of staffing, it's always a problem and its back breaking, that's the only way I can feel at times. I'm only 23 and I go home with aches and pains all over and I'm like I want to be you know 60 when I kick a ball with my grandchild. I don't want to be bed bound … nurses tell you to be careful, so we are careful ... you try to stick to all the procedures ... but you still have, you know, aches and pains."* (IC35)

> *"I come home with a headache every day you know"* (IC29)

The large number of direct and indirect references to feelings of stress and pressure from various aspects of their work suggested these were by far the most frequently perceived threats to individuals' physical and mental health and wellbeing.

> *"when we've got a lot of work, it can get on top of you sometimes ... It's the fact that you get so much put on to you, onto your plate"* (IC26)

> *"The worst bits I think is pressure a lot of the time. On a busy day it can be relentless, you're just constantly, you know you make a bed and its filled again. You make a bed and it's filled again. You know on a treadmill, you never get off and it can be that soul destroying because you just don't feel like you're getting anywhere."* (IC01)

> *"when you're trying to do everything together it's really difficult and you feel just pulled in loads of different directions and you don't quite know which bit to do first."* (IC12)

"Sometimes I go home, I'm crying, I'm too tired." (IC57)

This finding is supported by the numerous references noted in the last section to the stress experienced by colleagues as a consequence of their workload.

5.2.2 Threats to way of life

Encompassed within this heading are various factors potentially threatening to an individual's current mode of existence. For the participants in this study these primarily related to their employment and professional status.

The threat of litigation

There was ample evidence from a number of participants to back up the assertion (noted in 5.1.2) that nurses were "*scared if they do something wrong that they're going to get sued for it*" (IC07).

> *"I worry about at the end of the day my pin number could be put at risk. ... you can lose your pin for, I don't know because there's all sorts of things, you know, if you make a drugs error, it could be a drugs error, you can, you know, there are incidents where due to a nurse giving the wrong medication and the patient has died. So yes, there is always that at the back of your mind that, you know, when you try to juggle so many jobs, you know, and just a slight slip in concentration or, you know, because you're under pressure to get a certain amount of jobs done, that could result in a patient being seriously harmed."* (IC47)

> *"I feel that if something happens as a nurse we will, someone will come down on us like a ton of bricks."* (IC67)

> *"actually you're putting our registration at risk when you leave us short like that and trying to do the work that we can't possibly do."* (IC52)

The anxiety which could be engendered if documentary evidence could not be produced is evident from the following example.

> *"I had a complaint from a patient ... the fact that somebody can actually point a finger and say, "you've done that!", it's horrible and you have to prove that you haven't. And it does take you aback because ... it really leaves you sort of very defenceless really because anybody can turn around and then you have to prove that you haven't done it, it's very, very hard."* (IC25)

> *"I think in a court of law my accountability is questioned and they would say "did you complete a datix form?"."* (IC56)

The bureaucratic form-filling required to mitigate this threat was often cited as something which took time away from direct patient care.

> *"Sometimes because of all the legal implications these days you have to make sure you have enough time to do the writing because if something happens then you haven't written it down then obviously they think it hasn't happened. You might have done it but you haven't written it down and you haven't really got a leg to stand on"* (IC23)

> *"litigation wise, I mean they've gone, you understand the reasoning behind it but sometimes it's gone to extremes. You have to tick forms for absolutely everything ... everything has to be triplicated. ... I mean sometimes you think, "oh, here comes another form" ... a lot of the things is just part of what you should be doing anyway, you're having to prove you're doing everything"* (IC15)

Threats of reprimand and reprisal

Litigation is only one possible end result when a member of staff is perceived to have failed to meet the professional standards expected of them. Long before it gets to the point of formal complaint, staff members may feel threatened by other people's dissatisfaction and the prospect of being blamed for sins of both commission and omission.

> *"you get patients' relatives that will come and complain to you, saying like "oh no one's done anything!" ... or like someone's like "oh you haven't even shaved my dad today!"* (IC52)

> *"I look at the possibility that can be, you know, that they can fire a complaint against us as well that we don't look after them."* (IC57)

> *"you have certain checks you need to do ... [because if] something happens, then you're the one that would get the blame."* (IC14)

5.2.3 Threats to personal relationships

Dilemmas in achieving an appropriate balance between work and family life were mentioned by a number of participants.

> *"Probably I'm lucky now because both my children have left home so there's only me and my other half. So I don't feel the pressure perhaps of family as*

> *much as I did when I first started whereas you know ... Main guide in life is to, where does your loyalty lie. Do you go home because you're children are sick or do you stay because ... [of] your work colleagues. "* (IC01)

> *"as long as everything is going smoothly outside of work, then yes, I very much switch off. But ... if I know something's going on ... then you are distracted temporarily....[but] I think the worse thing is I probably, when I go home I, I act like I'm still at work and my husband tells me off ... I think it's more that work spills into home than vice-versa, to be honest."* (IC41)

Maintaining relationships with colleagues could also be an issue[111] and some participants recounted being affected by difficulties in relationships with other members of staff:

> *"sometimes you think "I really don't, I can't go into work today if that persons on" because they make you feel that bad. That makes your job really difficult because you're trying to work and you're looking after patients and you've got someone constantly on your back and not being very nice most of the time"* (IC34)

> *"people were sort of joking, some of the other staff were ..., oh you know, sort of making a joke of it (the incident) and taking it light-heartedly when I just wanted to cry."* (IC03)

Participants also spoke of worrying about how colleagues were managing, and senior staff in particular could be concerned not to be seen as uncaring.

> *"I do worry about other staff actually ... they need some help so, but sometimes I won't be able to help"* (IC 59)

> *"you try and do your best as a coordinator to try and help your staff and sometimes you feel, you know, you try and get help and sometimes there isn't any help ... then I feel a little bit like oh I can't, I don't, I don't like leaving the staff feeling like I'm not doing anything else, but I am trying to get help"* (IC46)

5.2.4 Threats to public persona[112]

Closely allied to concerns about maintaining good relationships are those about the sort of concept of themselves that people present to others in their environment. Various audiences may be more or less significant, depending on circumstances.

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[111] Around a quarter of NHS staff yearly report that they have had experience of bullying from colleagues in Source: NHS Staff Survey2017

[112] For discussion see Chapter 8

Hence, these participants' desire not to be seen as undemocratic or unfair by their staff:

> *"I'm conscious of the fact that we are a team and just because I think that's the best way to go, doesn't necessarily mean it is the best way to go. So we're trying to get a bit of consensus"* (IC18)

> *"If its quiet in the afternoon, I'll say I'm going in the office for half an hour, shout me if you need me ... generally when I'm clinical I split my role slightly. I am clinical because that's the priority for that day and it's not fair on the staff if I say I'm clinical and I sit in the office all day"* (IC19)

> *"I feel a little bit that I've, I feel as if I've let them down a little bit, I couldn't sort the problem out."* (IC46)

It could also be important to be seen as fulfilling a public stereotype of a nurse's role;

> *"it is a big difference between being a HCA and a staff nurse. I don't think that really hits you until you're on the ward and you're expected to know. I mean ... the relatives don't know you're newly qualified. They expect you to know and everybody suddenly expects you to know."* (IC33)

> *"Maybe you are seeing the nurses just going there, coming there, going there, coming there. The people who look at you don't know anything about it they just like "oh she's just walking around, that's what they think"* (IC39)

> *"the role that we're undertaking ... it's about making sure that we are credible to the patients, that we are competent, that we have the right underpinning knowledge"* (IC49)

and some participants found adverse media comments about aspects of the NHS and, by extension, themselves as healthcare professionals, quite upsetting.

> *"out there you say you work for the NHS, well that's it, you're responsible for everything"* (FG)

> *"it's just so slanted against the NHS"* (IC01)

> *"some people from the outside think it's very bad and they don't understand what goes on, whereas you know more about what they don't"* (IC05)

Sometimes circumstances might appear to take someone away from their proper role, threatening their own view of how they should be perceived by others.

> *"I had to go downstairs to fetch a stretcher because a porter was not available ... what extent is a nurses role respected ... I'm supposed to be looking after my patients and I was taking over another role as a porter."* (IC22)

> *"this morning I've been the coordinator but this afternoon I've slipped into a staff nurse role because there isn't anybody else"*(IC20)

> *"I've got this complex, I hate people to think I'm doing nothing. ... I'd hate the fact that people would think I was sort of skiving at my work so I usually stay where people can see me"* (IC29)

In other situations deliberate selection might be made about a most preferred persona, such as wishing to align oneself with management rather than more junior colleagues, as in the example noted earlier (5.1.3) where the ward manager reportedly ran the ward short of staff in order to stay "*under budget*", or when there are conflicting obligations to work and home,

> *"at the end of the day I'm a mother before a nurse and I always will be."* (IC26)

5.2.5 Threats to self concept[113]

For many people the threat of not being able to live up to one's own conception of self, the self which they would like to believe themselves to be, may be as or even more salient than their public image. It appeared that for many of the participants in this research a key component of their self concept was that of the 'good nurse' whose focus was primarily, if not entirely, on the care and well being of the patient.

> *"nursing gives me satisfaction because I care for the patient ... Probably I could have made more money ... in some other field. It's a responsible job because you look after lives, not dead things or material things."* (IC02)

> *"I know that's why, why I've chosen nursing as my career and I know that I do my best for my patients. That's all I care about is that I can go home, well I can finish my shift and I know when I've handed over that I've given the best care that I can, and that's all that matters to me, is that I've done the best I can for my patients."* (IC44)

> *"I think when ...you make a difference to someone's life, that is, that's what makes you realise why you become a nurse. ... that's really what gives you that buzz and really makes you feel good about what you're doing."* (IC50)

[113] 'Self-concept' is an umbrella term covering various ideas people have about themselves as entities. See further discussion in Chapter 8.

This sense that the direct delivery of patient care was *the* fundamental part of being a nurse was often evident. Junior staff and healthcare assistants (HCAs) were particularly likely to feel that giving hands-on care was necessary to their self concept. One HCA interviewed had been considering doing nursing training but had given up the idea because it would involve less patient contact:

> *"I have started to think I wouldn't be with the patients like. You know I feel the patients trust me as an HCA and you find out a lot more about the patient because you're there. ... You're hands-on and I feel. I mean for a staff nurse they have a lot of paperwork to do and a lot of paperwork and you know I just don't want to do that. I want to be with the patients, so that's the reason why I haven't gone into it. I'm happy in what I'm doing."* (IC40)

Remarks made by qualified staff also suggested the same idea:

> *"I sometimes feel like I don't get enough hands-on sort of experience with patients, I always thought nursing was things like having the time to do a patient's nails because you get time to spend with them, so you obviously talk to them and you build up a rapport. And sometimes I feel some days you can just literally be on the phone for sort of a good couple of hours, just time on the phone or sorting out messy discharges .... And so I find sometimes it's not always sort of a lot of time with the patient. Which annoys me"* (IC03)

> *"I think our training as a nurse, that's what I miss doing, just spending time with the patients. ... You know, making sure they've had, you know, they sometimes just have a bare wash, you know, the essentials and that's it, when all the time we used to wash their feet, put their feet in a bowl of water and, you know, just all the little things to make them more comfortable that we just don't do now."* (IC47)

> *"you don't feel like you can give any patient care because it's constantly "move this patient, this patient needs to move, we've got four down in A and E waiting to come up" and it's like you rarely get time to just enjoy actually caring for your patients. ... it's just very frustrating, I don't feel that I can do my job properly"* (IC51)

Even staff on upward career paths with increasing managerial responsibilities reported similar feelings:

> *"I tend to feel a bit guilty when I'm doing that because I feel like that's not patient centred and it's perceived as a bit of a management thing, which I know I've got to do but it just doesn't feel right ... it just doesn't feel like I should be sitting there doing my emails when people are running around, but that's the nurse in me."* (IC18)

> *"If I've had lots of meetings that I don't feel are very productive, particularly if the wards short and I've had to leave the ward and go to a meeting that's not been very productive then I feel that's a bit of a bad day. Bad use of my time"* (IC19)

Given the perception of a large majority of participants that circumstances frequently prevented them caring for patients in the way they would choose (see section 5.1.1) it is not surprising that many participants expressed the stress they felt from not being able to live up to this important part of their self concept. Nearly all (24) of the Phase 2 participants reported feeling stressed or pressurised by the staff shortages which they had recorded as adverse events, and more than half (25) of the participants in Phase 1 (who were recorded on days when they were able to take time off to be interviewed[114]) also noted that pressure of work put them under stress.

> *"Sometimes I do think "oh that weren't done" and you do feel bad, you know sometimes you think "oh I should have had enough time" but there wasn't enough time for that"*(IC40)

> *"it's sometimes stressful in terms of when ... I feel I'm not being able to give the level of care that I'd like to give."* (IC48)

> *"you feel like you're a bit of a failure, you feel that you're not, you're not achieving what you're qualified to do... that's what's really frustrating, is that you can't give the care that you want to give because, because you can't physically do it."* (IC50)

This section offers considerable evidence to suggest that, as well as identifying numerous risks to others, particularly patients, many staff interviewed for this research were also aware of multiple threats in their working environment posing risks to their own personal well-being. In particular, it appeared that the perceived shortage of staff was seen as increasing risk to staff both directly, e.g. through physical exhaustion, and indirectly, by damaging their self-concept as 'caring' nurses. Participants' narratives indicated that in many cases their perceptions were influenced by both their cognitive assessment of and their emotional reaction to perceived threats.

[114] Presumably, therefore, not just reporting their feelings at the time of the interview.

5.3 Summary and concluding remarks

As anticipated, the participants in this study, ward based staff at a district general hospital, perceived numerous threats in their working environment, many with potential implications for patient safety. Their narratives provided many examples which supported the first proposition of this thesis, "*that people (in this case hospital staff) can and do identify multiple, qualitatively different threats in their environments*".

In terms of threats to others, all participants identified a major risk to patients' welfare from a perceived shortfall in numbers of staff available to care for them. They saw this as being a key factor in the incidence and prevalence of other threats to patient welfare. These included risks of physical injury, particularly falls, medication errors and hospital acquired infections. In addition, Risks to colleagues included injury from working without proper equipment, aggression from patients and relatives, being complained about or reprimanded, and mental and/or physical work-related stress. Risks to the hospital organisation itself related to its functioning, finance and reputation. These were mentioned more frequently by senior than junior staff.

Perceived risks to individuals themselves[115] included similar possibilities for physical injury and mental and/or physical work-related stress to those described as affecting their colleagues. Individuals were also concerned about threats to their way of life, from being reprimanded or blamed for things going wrong, to being found to be in breach of professional conduct and losing their right to practice. Work-related difficulties concerning personal relationships with immediate family or colleagues were another anxiety for some participants. Some people reported worries relating to risks of damage to their public persona, either in the eyes of their colleagues, by seeming to ignore their needs, or of patients and relatives by not carrying out all the duties expected of them. In addition some people were upset by media criticism of the NHS, feeling it reflected badly on them personally. Finally in this section, many participants

[115]divided into categories derived from Maslow's Hierarchy of Needs (Maslow 1943) – see Chapter 4 for rationale

appeared to feel that their concept of themselves as nurses was frequently under threat because they felt they were not always able to give patients the care that they felt they needed.

The most interesting and unexpected of these findings related to perceived threats to patients. It was inevitable, given the large numbers of adverse events recorded annually on the national database, that many specific examples of threats to patient safety were identified by participants. However, a key theme to emerge from the data was the view of all 67 participants that many, if not most, adverse events could be attributed to what they saw as *the* major threat to patient safety, having insufficient numbers of staff for all required tasks to be carried out. Indeed, all 27 participants in Phase 2 were selected specifically because they had identified 'inadequate levels of staff' as an adverse event threatening patient safety.

What is particularly intriguing about this finding is participants' perception that, were one specific threat, that of lack of staff, to be removed then the level of risk posed by many of the other threats to patients, e.g. of falls, or medication errors, would be reduced. The normal response to a perceived risk of harm is to act to avoid or diminish it. However, the problem identified here was that participants felt that they were personally unable to take effective action to mitigate the threat posed by lack of staff[116]. It was clear from the data that not only did staff feel that their patients were put at risk of harm, but they themselves risked being blamed for failing to deliver proper care, or experiencing damage to their own self concept. The reported effect of the fear of these consequences was the creation of high levels of stress and/or emotional reactions to the situation. This finding and possible explanations will be discussed in detail in Chapter 8.

[116] Though it should be noted that participants in Phase 2 had, in fact taken some action by recording shortage of staff as an adverse event

Chapter 6: Responding to risk

This chapter again draws on data from both Phase 1 and Phase 2 of the research, but this time the focus is on reported decision-making and behaviour in response to perceived risk from these identified threats. Consideration of these processes leads to a way of conceptualising decision-making as consisting of two levels. The first level relates to prioritisation, the process of scanning perceived threats in the environment, assessing the risks they pose and selecting the focal (most threatening) threat. The second level of decision-making looks at selecting an appropriate behaviour in response to that focal threat.

The following sections of this chapter utilise this concept of two levels of decision-making to present the empirical observational and interview data, drawing on Saaty's (1987, 1999) concepts of analytic hierarchies and networks[117]. Beginning with first level decision-making, the narrative looks first at conscious prioritisation; how staff reported the cognitive process of selection and sequencing of tasks relating to patient care and other aspects of their designated work schedule. Examination of this conscious[118] mental process is followed by consideration of processes of prioritisation and choice of which participants were sometimes less aware[119]. Moving to the second level of decision-making, the chapter then explores both deliberate and less intentional behavioural choices following selection of the focal threat.

It is argued here that considering behaviour as risk driven enables a better understanding of the continuum which exists between prioritisation and simple

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[117] This theoretical model of the decision-making process is important to the argument developed in this thesis and will be explained and discussed in detail in Chapter 8. It should be noted, however, that Saaty's theories, like most theories of decision-making, see the process as goal directed, i.e. motivated towards a desired end. Since this thesis argues that behaviour can also be conceptualised as a response to perceived risk, i.e. driven by a need to avoid an undesirable outcome, it is suggested that Saaty's concepts can be re-stated as being prompted by threats perceived in the environment. In these terms, prioritisation is seen a process of risk reduction through the assessment and hierarchical ordering of elements of a particular task.

[118] Following Oatley and Johnson-Laird (1987), use of the word 'conscious' should not be taken as a synonym of 'cognitive', as the argument will be made that non-conscious decision-making may, nonetheless, reflect a cognitive process.

[119] So-called dual process theories (Evans 1984, Khaneman 2003, 2011) will be discussed in Chapter 8

ordering. Using this method of analysis, decisions about which elements of a task should be completed first are dependent on the perceived risk posed by the threat of non-completion. Where the risk of non-completion is perceived to be negligible, tasks will be ordered either randomly or by convenience and/or custom. Under such circumstances, there is no need to assign priority, since all tasks are expected to be accomplished. However the greater the perceived risk of contingencies arising, such as time pressures, more elements added to the task, or changed circumstances, the more necessary it becomes to consider the relative importance of elements of the task and to prioritise those posing the greatest risk of harm if left uncompleted. Hence the process of decision-making in which elements of a task are sequenced for completion can be seen as entirely dependent on the assessed degree of risk.

Overall, the chapter aims to trace some of the connections between risk perception and behaviour by presenting evidence of how the observed and reported actions of participants in this study appear to have been variously influenced by the perceived risks from multiple threats in their environment and seeks to elaborate on the multiple links between emotion, cognition, and decision-making (Schwarz 2000).

6.1 Level 1 decision-making and behaviour

The findings presented in the previous chapter demonstrated that ward based staff were aware of multiple threats in their environment, identified as posing risk to others and/or themselves. In terms of threats to others, risks to their patients' safety and well-being were the most frequently identified (unsurprisingly, given the focus of their work and their professional values), but risks to their colleagues and the organisation were also reported. Threats to various aspects of their own lifestyle and existence were also acknowledged.

These findings highlight some aspects of the interaction between health professionals and their patients of which medical sociologists have long been aware. Brown (1989), in the introduction to his wide-ranging collection of articles on the subject, points out that not only do individuals bring their own backgrounds and agendas to medical encounters, but these are also affected by professional and institutional frames.

Tuckett's (1976) paper in that publication perfectly delineates these dilemmas of choice, pointing out that health professionals need to be continuously aware of multiple and qualitatively different threats to the well-being of vulnerable patients and to balance decisions about their relative importance and the urgency of the response required against their own personal needs and preoccupations.

The following sections draw on data from the research to examine how participants considered and addressed such dilemmas.

6.1.1 Deliberate prioritisation

The research interviews began by asking participants to describe in their own words their thoughts and actions from coming on duty on either that day (Phase 1), or the day on which they had filed an adverse event report (Phase 2). It was clear from these narratives that shortly after they arrived staff would, as a matter of routine, deliberately consider and order the tasks they needed to complete during their shift.

> *"Prior to handover I normally just pop into the unit ... to give myself a few minutes to actually assess what's going on .... If ... I've got a handle on it, ... I've got a better feel for when I'm allocating people to various situations. So I kind of like that as a bit of a prelim to my day"* (IC18)

> *"what you do then when you come on, once you've had handover, depending how long it takes, then you sort of organise your day, ... you're sort of formulating your whole plan from what your handover is."* (IC25)

For some people planning what to do was a very considered and formalised process;

> *"I'll write down all my patients and, like on a separate piece of paper and what needs to be done for that patient, and then literally I'll just have like a tick sheet."* (IC53)

> *"I can't think very clearly if things are really messy, I find that hard and I need to have my lists of ... what jobs will you do that day and so on."* (IC41)

What is being described here is a simple ordering of participants' allocated tasks. However, in most cases what people described was not just ordering but arranging tasks in relation to their relative importance, based on an awareness that completion could not be guaranteed but was dependent on circumstances outside their control.

> *" I just think "well that needs doing that needs doing, that can wait can be done like a dressing that can be done later by the night staff if needs be, its not an urgent". I think you look at the most urgent things that need doing"* (IC31)

Many of them actually described this process as prioritisation[120],

> *"the first thing is to prioritise, depending with the needs of the patients and also depending with the handover that day."* (IC22)

The complexity of the series of decisions that might need to be made is aptly illustrated by the following quote. Here the participant appears to be using various different criteria, relating to different sorts of threats, effectively creating hierarchies within hierarchies.

> *"to basically prioritise my workload. ... I've got a highlighting system that I use to highlight things that are important and I do like a traffic light. I highlight different things in my head of the colour that I've got in my head so things like antibiotics I do in orange, anything highlighted important for the day I do in pink, and green might be a bit unusual that I'm not sure about so I can ... (ask about it)."* (IC07)

Many participants gave examples of different tasks which they might on occasion have to prioritise. Sometimes it was the serious nature of patients physical condition;

> *"if I see some patients who is poorly or some kinds of patient who is not really pass urine, I would like to prioritise those patients."* (IC01)

> *"Some of our patients cannot wait and I mean a spinal patient cannot wait, you know you need to do him because ... they need a lot of care, you can't just say "oh I'll do it later"."* (IC10)

> *"my priority wasn't to get him washed, although it is nice to get your patients looking really nice, presentable, but that's not a priority. The priority is to let the patient have his rest, you know, no one got too sick by a little bit of sweat or whatever."* (IC17)

or the need to have patients ready for different procedures, such as surgery or leaving the ward for other investigations.

[120] Participants in Phase 1 were actually prompted to describe how they prioritised their work and 17 used the word specifically in describing their day on the ward. Five participants in Phase 2, where 'prioritisation' was not used in the introduction, also used the term.

> *"it can be anytime when the people from theatre come. It could be in 15 minutes, half an hour, could be in 5 hours but because we don't know when we have to get them ready first. So they are the first priority for me is nil by mouth patients."* (IC06)

Sometimes the case mix on a ward could dictate priorities.

> *"if there are loads of patients to be fed, then we have to prioritise and do that first"* (IC22)

Participants reported that on many occasions deciding between different priorities was a matter of making choices between the needs of one particular patient and those of another;

> *"there was a lot of people in there and I thought ... somebody needs to stay outside to look after the other patients as well"* (IC14)

> *"a porter was not available to help a patient get to the departure lounge. ... I had to go to the departure lounge and fetch a stretcher. ... I was in the middle of medication, so I had to stop the medication because the patient was going with the 1 o'clock shuttle."* (IC22)

Staff in senior roles also might have to make decisions about how much of their time to spend on direct care as against planning to meet patients' future needs, or how to deal with unexpected calls on a staff team which was already stretched.

> *"things like ... a CT scan patient has got to go off and you find that you've already got so many patients that need two nurses to wash them that you're kind of thinking, "right, who can I take from there because that person's got to have an escort because the bank can't supply us with an escort."."* (IC20)

> *"the phone was ringing (from A&E), I just said "you're going to have to sort of wait on because we're busy, we're short-staffed, I'll give you a ring in ten minutes, let me know what's wrong with the patient and then I can see if I can prioritise where to put the patient". ... they said "we need a bed now!", and so I said "I'm sorry, we're short-staffed, you're going to have to bear with me"."* (IC58)

While the vast majority of choices reported by staff were prompted by assessment of risks to patients, participants were aware, as detailed in Chapter 5, of many other threats in their environment offering potential risks, to themselves, to other staff, or to the organisation. Such perceived risks might also enter into the calculation of what should be prioritised at any one time.

> *"when it's so short-staffed it is the legal things that you need to get done. It's like, ... what's going to cover my back in court if something was to go wrong"* (IC53)

> *"Sometimes I don't get the cannula care bundles filled out because that to me isn't a priority, the priority is getting patients their drugs and signing for them. I know cannula care bundles are an important part of the infection control, but there's some things you have to prioritise"* (IC56)

> *"some priorities are set by others so for example my statistics that I have to do every month. ...I'd probably say in the scheme of things that they were low priority but because they're dictated to me by my manager then I have to do them"* (IC19)

From the perspective of staff in top management roles, a number of whom took part in the focus group discussion, even more varied threats were part of their assessment of risk, since they were consciously aware, as perhaps more junior staff were not, of how different aspects of the organisation affected each other;

> *"it's difficult when you have scenarios such as we've got a risk going on in A and E where you've got people on trolleys and, and you've not just that but you've got ambulances backed up who can't get back on the road and, but they're also putting you guys under pressure to kind of turn patients around."* (FG)

So far, what has been described as prioritisation can been seen as a largely cognitive process. However, there is also a wealth of evidence indicating that all cognitions are shaped by the feelings of the person at the time of making choices[121]. The following quotations illustrate that the decision-making involved in prioritisation could be both difficult cognitively and also at an emotional level. For instance, individuals sometimes found themselves having to decide the relative salience of threats affecting two or more different patients, leading to anxiety about not being able to give every patient the care required immediately.

> *"balancing, the one ... I had to manage her pain and the other one, I had to plan a discharge. So it was which is which, you know."* (IC13)

[121] See for instance Zajonc, 1980; Lowenstein et al,2001; Slovic et al, 2004; Lerner et al, 2015. Such feelings may relate to the current emotional state of the decision maker, i.e. their mood; to emotions such as fear, anger or outrage evoked by: the threat itself (e.g. Breakwell, 2014 Chap 5); to affect, a subtle form of positive or negative emotional attachment to what is being evaluated (Slovic *et al,* 2000 p xxxi;); past experience (Epstein, 1994); or indeed to any combination of these.

> *"sometimes it's so difficult when you're given, you know, which one do I choose, which patient do I choose, which is my priority when they're both equally, you know, yet you've got one at one end of the unit and one at the other end"* (IC67)

Another source of cognitive and emotional conflict could be weighing the immediate needs of patients and staff on the ward against organisational priorities which, if ignored, threaten to impact both the organisation's finances and a person's own career prospects.

> *"the problem is obviously when you take the admissions from A and E, so not only am I trying to deal with the fact that I'm trying to help down in zone four doing the medications ... I've also got A and E ringing me ... it's just like, you know, I'm trying to do one thing but then they're saying to me patients are breaching in five minutes. So then I'm like well I know that if I don't get the breach in I'm going to be in more trouble, so it's just like, sometimes you're a bit like which way do I go to sort, you know, a problem out."* (IC46)

Prioritisation might also mean trying to ignore ones own physical needs, or simply feeling completely unable to decide what to do next.

> *"when it's really busy, they say, "oh just go and get a drink" but it's difficult ... and you say, "I'll have a drink in a minute, I'll have a drink in a minute" and ... then you get so engrossed in what you're doing and then you realise, "oh I never did get that drink.".* (IC17)

> *"There's times when you feel as if you're being overwhelmed and I know there's been a few but there's other days where you just seem as if you float through it and that is lovely, that is wonderful. You feel as if you, you've got a problem, you've sorted it and there's a lapse between the next one. It's when you get them just constantly coming and before you can get one sorted out, another one's appeared. But then that's where you prioritise."* (IC20)

Constantly having to make difficult choices appeared to have contributed to the very idea of prioritisation acquiring pejorative connotations. For these participants, prioritisation, instead of being a neutral term which simply described a way of ordering the tasks ahead of them during a shift, had become associated with a process which staff saw as unacceptable and wished they did not have to undertake. Two participants actually put how they felt into words, one reflecting with pleasure on a day when the workload had been relatively light,

> *"that's where we are right now, so I haven't had to prioritise too much today"* (IC15)

and the other bemoaning the need ever to prioritise.

> *"the fact that you have to prioritise upsets me actually because what I would like to do is help everyone equally and not prioritise"* (IC26)

An explanation for this negative view of prioritisation may be found in the important finding in the previous chapter that there was a universal belief among participants that patient safety was being compromised because there were frequently insufficient staff available to carry out all the tasks deemed essential to patients' well being. Under these circumstances, prioritisation had come to mean making decisions about which aspects of the care required by patients would be least harmful if left undone.

> *"my understanding was people had their obs done and if it didn't get done was because of you know lack of manpower"* (IC07)

> *"you're aware that you, you know, you're probably just sometimes doing the bare minimum for your patients.... making sure that they've had a wash, making sure that they've had a set of observations done, that they've had their drugs and then, and that's it basically"* (IC47)

> *"If physically we don't have time then they don't get a morning cup of tea ... We always try to but sometimes when the ward is so, so busy we just don't get time."* (IC04)

Some of the observational evidence from Phase One provided corroboration for this view of prioritisation as a process of deciding what was least risky to omit. For instance, a number of 'violations'[122], were recorded during observation sessions. Since many, if not most, of such rules are devised in the interest of patient safety this behaviour might seem to increase, rather than decrease risk. However, the apparent intention was to reduce a more general and immediate risk to patients of leaving essential tasks undone, as implied in the comment by a clinical educator that nurses were sometimes "*too busy to prioritise good practice*" (OC06).

[122] 'Violations' are deviations from procedural rules, undertaken to enable work to be done more easily or faster (Reason 1990, 1995, 1997, 2000; Lawton 1998). Health care practitioners frequently modify their work practices as part of individual and team coping strategies (Hignett et al, 2018).

Observed examples of this type of behaviour were lax control of infection procedures (not always changing gloves/aprons between patients); a nurse commenting that s/he was "*trying to get the weights done while the ward is relatively quiet – they should really be done tomorrow*" (OC21), the implication being that it was better to record a weight on the wrong day than to take the risk that the weights would not be done at all; and a healthcare assistant indicating that if all the rules were followed patient care would be put at risk "*Health and Safety! Don't bring them in on this ward or we'd get nothing done.*" (OC25).

Violations of proper procedures were also reported at interview.

> *"talking about the audit things, the infection control stuff, I wouldn't have been able to do any of that on a lot of the shifts I've worked. ... (there has been) no time for anything like that, that we should be doing, but they're things that you kind of unfortunately leave."* (IC12)

> *"observations, they were delayed by at least sometimes six hours because we didn't have the, physically have the time to do them when they should be done"* (IC51)

> *"Even giving medication late ... Sometimes you have to choose between feeding patients and giving them medication."* (IC43)

Choice of priorities may also be swayed by threats of which the decision maker is not knowingly aware at the time. The next section considers evidence from the data to suggest that threats which are not specifically identified may nonetheless be influential in decision-making.

6.1.2 Subtle influences on prioritisation

People may, by reflecting on their thoughts and behaviour, be able to recognise more cognitive and emotional influences on issues that concern them than they were fully aware of at the time.[123] At interview, evidence of such influences may emerge

[123] Psychological theories of information processing and selective attention suggest that far from people being constantly involved in analysing all the behavioural options open to them, they are able to attend fully to only one set of stimuli at a time. Thus, while focusing on a particular issue individuals may have only limited awareness of the degree to which other potential threats are influencing their judgement. So while they may think, may wish to, and may indeed truly believe that they are only making their

spontaneously, as people reflect on their working day, or be elicited by probes, which encourage the interviewee to expand on reported thoughts or behaviours, bringing to the fore aspects of their thinking which they may not have consciously articulated to themselves previously. The following examples offer a glimpse of these sorts of thought processes.

> *"If I had a discharge, that would probably be a priority over anything else. But then saying that, I don't know, that's really not correct. I think in the sense that the pressure that we have and you know you've got a discharge, they're starting late and you know you've got someone that potentially is going home. I think for me that I'm thinking "right, what do I need to do for that", so I'll put that kind of first. But then I won't do any of that until I know that all my patient's care, the basic care is there."* (IC44)

> *"There are days when you just don't know what to do next, you know, what's your priority. Your patients obviously are the priority but you do have to literally say, "right I'll do this, then I'll do that and I will come and help you after that" but it's quite difficult and then ... somebody rings in sick and the numbers for the next shift aren't very good, how do you organise that? ... it can take you away from the patients when really you need to stay focused on the patients because that's what we're here for. But, on the other hand, if you don't get staff in for the next day, then things are going to be worse tomorrow."* (IC12)

Interpretations of such data at analysis are always subjective, unless corroborated by the interviewee at the time, but they do serve to alert the researcher to the existence of other possible perceptions of risk affecting the decision-making process.

It is also sometimes possible to infer less direct influences on prioritisation from observed behaviour. Again, though, unless it is possible to discuss possible interpretations with the person involved, observation may only serve to alert the observer to potentially relevant issues. For example, when a nurse is seen putting on a tabard to prevent interruptions during a drug round it may be assumed that s/he is acting in the interests of patient safety; but it may also be that other perceptions of risk are contributing to the behaviour. Fear of reprimand for contravening hospital policy or litigation for making medication errors, or a need to deflect other demands

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selection of what to prioritise based on, say, the perceived requirements of their patients., their choices may in fact still be influenced by perceptions of other risks. For a review see Bourgeois et al, 2016

may all be influencing factors, but it is not possible from observation to determine which, if any, of these is relevant.

For instance, during one observation session a clinical educator remarked that a laboratory technician was taking blood specimens from patients without wearing gloves and without washing her hands between patients (OC01), risking harm to both patients and the member of staff from cross-infection. The technician was not strictly speaking under the clinical educator's jurisdiction, however, had either of these risks been seen as the most salient, he/she could have intervened to prevent the behaviour continuing. The clinical educator chose instead to follow the organisation's procedural guidelines and request the ward manager to report the breach of control of infection regulations to the staff member's own line manager.

One inference which can be drawn from this behaviour is that by following standard procedure in this way the clinical educator was seeing the most salient threat as that of failing to abide by the rules, hence risking reprimand him/herself. However, a number of other interpretations are possible. Perhaps the direct approach had been tried before and failed, in that case was damage to the clinical educator's self esteem the most salient threat to be avoided? Or was the clinical educator wary of usurping the ward manager's authority and seeing the most salient risk being that of damaging relations between colleagues? Or maybe it was felt more important to apprise the technician's line manager of the infringement of good practice, hoping to trigger a more general response which might offer better protection from the risk of infection in the future.

Any, or indeed all, of these explanations are potentially valid, so it may be difficult if not impossible to identify by observation alone the focal threat to which another person is responding. Nor is it possible to know from observation which other threats were also affecting behaviour. However such caveats about the conclusions which can reliably be drawn from examining observed behaviour do not necessarily preclude the use of such data in exploring the links between risk perception and behaviour. Although it is not possible to be certain about which threats were most salient in prompting the observed response, the analytic process itself may, by focusing

attention on possible threats in a person's environment, offer insights into the dilemmas and choices faced by an individual in a particular situation. Such insights may serve to alert the observer to threats which might not be identified otherwise.

The examples In the following table, expanded from contemporaneous notes, illustrate the potential usefulness of analysing observational data in this way.

Table 6.1 Risk perceptions inferred from observed behaviour

Code	Observed and/or reported behaviour	Most salient perceived risk/s (inferred)	Other possible but less salient risk/s (inferred)
OC01	Injection ampoules not in correct box. Explanation given for rule violation is that new boxes don't fit on trolley.	Risk to staff (inconvenience)	Risk to patients (wrong medication could be used); Risk to staff member (reprimand for rule violation, threat to livelihood from giving incorrect medication)
OC15	Consultant apparently about to leave ward sees observer, turns round and washes hands at sink before saying to the observer that the hand gel dispensers at entrance and exit of ward were empty (*N.B. checked later this proved to be untrue*)	Risk to individual (reprimand for rule violation, loss of face)	Risk to patients (danger of cross infection)
OC20	Doctors go behind closed curtains while patient is being washed. Nurse emerges saying "what a disaster". When doctors leave they draw back curtains leaving the patient sitting half undressed on the side of the bed	Risk to individual (upsetting doctors by asking them to wait until the patient's wash was completed)	Risk to patients (loss of dignity)
OC25	Nurse puts on red apron to go into isolation side ward, comes out again and collects gloves saying to the observer that s/he hasn't touched the patient.	Risk to individual (reprimand); risk to other patients (cross infection) (N.B. might be either/both)	

This section has suggested that the Level 1 decision-making process is one of selection and prioritisation of multiple perceived threats according to risks they appear to pose. This process, which concludes when a focal threat is identified, is influenced by both cognitive and emotional factors. The next section considers Level Two decision-making, looking at what the data may reveal about choices and subsequent behaviour following selection of the most salient threat.

6.2 Level 2 decision-making and behaviour

Level 2 decision-making deals specifically with the threat selected as the most important, or salient, at a particular time. The choices to be made are therefore limited to options for behavioural response to the specific risk it poses. This section begins by looking at clearly identifiable and seemingly deliberate responses made by staff to a focal threat. These include both observed and reported data relating to patient safety issues, as well as a number of instances where, although an apparent threat to patient safety was evident, the behavioural response addressed a different focal threat, either to other staff, the organisation, or to the staff member involved.

The second part of this section deals with other influences on choice of a behavioural response following selection of the focal threat. In particular, it demonstrates that, as with prioritisation in the previous section, choice of action may be wholly or partially shaped by cognitions and/or feelings engendered by other threats in the environment.

6.2.1 Responding to a deliberately selected threat

Since ensuring patient safety is a fundamental value for healthcare staff, it is unsurprising that much behaviour recorded could be attributed to decision choices of which individuals were cognitively aware, aimed at avoiding, or at least reducing, specific perceived risks to patients. For instance, a number of different responses to the threat of patients falling were reported or observed. These included following a patient with a chair (OC45); delaying discharge until patients are assessed as fully ambulant (IC26); or, in the absence of special low level beds, transferring a patient who persisted in climbing over the guardrails to a mattress on the floor (IC23).

The importance of avoiding medication errors was also evident in staff behaviour. Nurses were observed checking prescriptions carefully before administering tablets; sometimes wearing yellow tabards to indicate they were doing drugs rounds and should not be disturbed; and, on one occasion, asking a more senior staff member for advice about whether or not to give a prescribed drug because the chart had previously been signed but not dated by another nurse (OC20). One nurse described a

complicated system for ensuring that, not only did s/he administer medication correctly but also checked for previous shortcomings that might risk future adverse consequences.

> *"when you're doing the drugs, I always have a bit of paper on the side of the drug chart and I'm jotting things down and anything with the drug charts, I notice need rewriting or if things not been written up properly, start dates or times have not been put in."* (IC33)

Behaviours aimed to reduce the threat of infection included staff washing and/or gelling their hands between patients and wearing disposable aprons and gloves when undertaking some tasks, actions noted constantly during observation sessions. Testing for specific infections when admitting patients (IC 25) was another reported response.

Many staff remembered working in the previous hospital premises and mentioned the perceived risks posed by the way wards were now configured, making continuous monitoring of patients' condition difficult.

> *"the amount of side rooms, it's, I've never known so many falls"* (IC46),

> *"[in] the old hospital we were close to the patients. We didn't have as far to go, we could watch our patients closely ... We had a side room right next to the nurses' station which we could look in on through a window. Everything was sort of like ten, fifteen paces away, ... where the acute bay was, it was right in front of you so you could see your poorly patients all of the time. Here, we're having to go round looking in on the patients, making sure they're breathing, they're too far away, you can't hear them fall"* (IC58)

Responses to ameliorate these types of risk included trying not to put confused patients into side wards (OC20); putting very sick patients into the only bay that could be seen from the nursing station (OC26); and 'specialing' patients whose condition was giving cause for concern (OC05). One Ward Manager had installed reading lights at strategic points to try to ensure that night staff stayed where they could see patients, instead of congregating at the main desk, from which no patients were visible (OC38). At an organisational level, awareness of the risk that patients could go for long periods without being monitored by staff had led to a directive mandating recorded hourly checks on each individual, though many nursing staff saw this response as inadequate and ineffective, pointing out that this was unlikely to prevent such things as falls.

> *"someone fell out of bed ... and I actually had been in to him an hour before so it wasn't like, because we've got these ridiculous charts that we have to tick every hour to say we've seen people." (IC52)*

It is relatively simple to recognise instances of staff members giving specific behavioural responses to specific threats to patient safety, however, taking direct action to ameliorate more global threats, such as the chronic shortage of staff identified by all the participants in this research, was not an option available to all staff. Nevertheless, there were some participants, notably ward managers and senior staff acting in a managerial and/or coordinating role, who were able to influence staffing levels directly.

Ward managers organised the duty rotas in advance to try to ensure numbers and skill mix were appropriate for each day. They were also able to respond to the exigencies of the moment by shifting staff around, or abandoning the coordinating role in favour of giving direct care to patients.

> *"It's down to us more to actually move the existing staff to make it safer across the board"* (IC64)

> *"I actually took one of my own staff from pre-assessment, one of the healthcare assistants from there which left them short, but it's a matter of, you know, sort of juggling risk really"* (IC42)

> *"this morning I've been the coordinator but this afternoon I've slipped into a staff nurse role because there isn't anybody else"* (IC20)

Staff in charge of a ward could also request extra workers by contacting the duty manager, though it was by no means certain that such requests would be successful.

> *"I rang the duty manager and I was basically told to deal with it the best I could and that they couldn't give us any help"* (IC58)

> *"You might be lucky and the duty manager may be able to find you a recovery nurse to come and, you know, help alleviate, but probably not. There has been a few occasions they have, but more often than not they can't."* (IC65)

The only other way to deal directly with insufficient numbers of staff was for the manager to take the decision to close the ward. This action was most likely on a

maternity ward where the risk to patients of too few staff was perceived as particularly grave.

> *"we are supposed to be escalating to close if we haven't got at least two of those rooms vacant at any one time ... you call the community midwives that are on call in first but you've still got the delay in getting them in ... You're looking at sort of half an hour to an hour to actually get your extra help in. And then if that's still not enough, you've then got to actually physically close the unit"* (IC55)

If it proved impossible to augment staff numbers, and wards remained open, staff had to choose other ways of responding to the risk to patients that the shortfall represented, and the most numerous behavioural responses, both reported and observed, appeared to be aimed either directly or indirectly at reducing this specific risk in some way.

Many participants reported going to considerable lengths to maintain their focus on patient safety, in the face of other perceived threats in their environment competing for their attention. For instance, all nurses were required by the terms of their employment to document all aspects of the care given to patients during each shift. Concerned about the substantial time commitment involved in completing compulsory "paperwork" when staff shortages were reducing the time available for patient care, some participants reported filling out paperwork in their own time, completing paperwork for colleagues, or simply leaving it undone.

> *"this morning I came in a little bit earlier because I didn't have time yesterday to do some paperwork so I came in a bit earlier this morning and did it before the shift started"* (IC23)

> *"I do tend to try and find stuff admin-wise that I can do for the midwives to make things easier. So I might do their evolution paperwork or put stuff through on the computer or do things like that."* (IC65)

> *"sometimes I don't have the time to fill out the paperwork that I need to legally, let alone another just like tick box"* (IC53)

Many other deliberate behaviours, both reported and observed, bore witness to strategies adopted by participants to address the perceived threat to patients from staff shortages and avoid reducing the quality of care they received. These included many instances of staff reporting that they did not take meal breaks when the ward

was very busy; or that they would come on duty early or stay late to ensure that as far as possible everything was done. Indeed, one participant demonstrated this type of commitment by insisting on coming into the hospital when off duty to complete the research interview, so as to avoid taking time out while on the ward. In addition, as noted in the previous section, staff would sometimes cut corners and bend regulations in order to complete their tasks. One participant even recounted running an operating list with too few staff in order to avoid sending patients home;

> *"there was a theatre that only had two members of staff in, which we always have three and two's a no-no really. ...(but) ... none of us want to cancel patients, you know, by this point they were already sitting in the waiting room. ... they've gone out of their way, they've taken time off work, they've got childcare ... the cases that they were as well, they needed to be done ... So nobody got a tea break, nobody left theatre, if you needed to go to the loo it didn't happen, you know, it was skin of the teeth stuff."* (IC62)

Despite all such efforts to avoid compromising patient care because of lack of staff, it was evident, as described in the previous section, that staff frequently felt unable to do everything required for every patient. Thus, a Level 2 decision about a particular behavioural action, for instance to make a patient clean and comfortable, could be limited by a previously taken Level 1 decision about what elements were least risky to omit from the care given to individual patients in order to ensure that all patients were protected from worse threats to their welfare.

> *"In my day when you did a patient you changed the sheet, you did every. I don't always have time to do that side of it, as long as the patients comfortable and I've left them clean, dry, ... sometimes if I have time I'll change that pillow but its like, if its not too bad you have to turn it. ... with mouth care and all the little extra things where you get between the toes and you clean under their fingernails ... we can only do that sometimes."* (IC28)

> *"There are jobs that will get left, I mean if the patient looks totally untidy and a total mess, then so be it, nobody died from that, you know, what they did die from was the interventions that you didn't do. So it's all the niceties that get left."* (IC17)

Furthermore, a number of participants reported sometimes having to omit distinctly non-trivial aspects of patient care.

> *"I even dream about things that are not being done, ... like medications that hasn't been given or has been given really late ... I know that I do what I can at work but some, I just very often feel that that's not enough.* (IC43)

> *"the patient that didn't get their blood transfusion till later... The patient who didn't get their pain relief, and I just thought, you know, this isn't fair ... it's not OK because the patients deserve better"* (IC67) .

> *"the same with pain relief, you know, people are being left in pain"* (IC51)

Many participants expressed a sense of powerlessness and frustration about the effects of a shortage of staff on patient care, and that they found it extremely stressful to feel forced by circumstances to behave in a way that they did not wish to behave.

> *"I feel for the patient more than for myself, the fact that they can't be seen as quickly as they should be.... you know, they urgently need it (the toilet), can't get there, you know, ... And you are the one who faces that, that complaint comes to you as a nurse, it doesn't come to the managers or anyone, you know, it doesn't come to anyone who can do something about it, it becomes more stressful for you and you physically cannot do it. That's why it's frustrating because you know you can't do anything about it"* (IC26)

However, while most staff were not able to do anything immediately to increase staff numbers, any staff member who felt patients were being put at risk because of insufficient staff could file a report on the hospital adverse event database, (known as the Datix system). All staff, of whatever seniority, were encouraged by management to file an incident report in such circumstances, and indeed it was not just those with managerial responsibility that did so. All the interviews in Phase 2 were with staff members of various ranks who had chosen to respond in this way and, while ten of the reports had indeed been completed by staff who were acting in managerial or coordinator roles, sixteen were completed by more junior staff, two of these being healthcare assistants.

> *"my point really about putting in this Datix was ... patient care wasn't being met, ... people were ringing for bed pans and things like that and often the bells probably weren't being answered for at least half an hour"* (IC51)

> *"we have to do adverse event forms if we haven't got enough staff and we're operating at unsafe levels."* (IC11)

> *"they (staff) are informed to Datix any shortages. So if they should work on three members of staff and they've only got two, they will Datix that.*

> *Because it's not what they should be working at, even though they may have said they can cope... They're still encouraged to Datix that."* (IC64)

However, participants did not generally have high expectations about what would happen as a direct result of reporting a shortfall of staff.

> *"If I'm honest, nothing. If I'm honest, I didn't expect anyone to kind of, I mean I thought about my manager might have kind of had a word with me about it and kind of raised, you know, any concerns that I had, but I didn't get that. I then thought that maybe one of the band sixes who apparently read, they read, they get the emails or something from the Datix, I thought that they might have kind of said to me oh I saw that Datix you put in, but no one's said anything to me about it."* (IC44)

> *"I knew the situation wasn't going to change and, and in the future if that was to happen again, that the healthcare assistant would still have to move regardless, of our fears for the patient safety and for our safety. But I just hoped it would highlight people if another event had occurred that night, that that was one of the contributing factors really"* (IC48)

> *"I didn't expect an awful lot to be done, because historically I think it has never been done."* (IC56)

Although generally aware that their current staffing situation was unlikely to be directly affected, a number of participants in Phase2 reported deliberately using the adverse event reporting system as a way of alerting management to the wider threat to patients posed by insufficient staff;

> *"one of the reasons I put the form in was that I felt it was a symptom of a wider disease of cutbacks happening and it's going to get worse, I know because they're making redundancies in lots of areas now. But cutbacks being made and assumptions being made that other people can absorb that work without fully appreciating (a) what the person that's gone did in the first place and (b), what the impact of that might be if it simply doesn't happen anymore."* (IC41)

> *"The main reason I wanted to put it in is to address it [the issue of staffing levels], because obviously if it's not mentioned then it's just going to keep happening."* (IC53)

> *"I'm not afraid to report an incident which in the long run could actually benefit the staff and the patient, because I take the long-term view, the more people that see it, the volume of incidents speaks for itself. If it's an incident about the same thing over and over again, people have to sit up and take notice and do something about it."* (IC55)

For most of the 27 participants in Phase 2, filing the adverse event report represented their best attempt at reducing the perceived risk to patient safety on that occasion. However, a couple of participants then took further action, demonstrating some other possible options to influence patient safety which others had either not considered, or not chosen to employ;

> *"on top of the Datix form, I then started speaking to several other people. So I spoke to the surgical services manager, I spoke to the surgical Matron, various other people, and just basically decided to do a bit of foot-stomping and a bit of "I'm sorry but this isn't flippin' good enough!" And it ended up, I ended up with the Assistant Director of Nursing down here and all sorts"* (IC42)

> *" I've been telling ... [the senior manager] if I get an incident ... to try and highlight, you know, how many incident forms are coming from here."* (IC46)

Although the vast majority of decisions about priorities for action related to eliminating or reducing perceived risks to patients, there were also a number of examples of priority being given to others (staff, relatives, the organisation) or indeed to threats affecting the staff member themselves. For instance, staff reported making efforts to meet various organisational targets, such as the four hour waiting time in A&E (IC44, IC48); a pregnant member of staff was excused from manual handling (IC48); senior staff would 'stand in' for more junior staff to ensure they got a lunch break (IC55); or, as in the following example, a senior member of staff reported filing an adverse event report to avoid other staff feeling that nothing was being done,

> *"Well it made sense for me to do that Datix. ... because they (the staff) have to know that we're doing something about why we were short-staffed. ... If they just see us as "oh well we're not going to Datix it", so it could happen again, whereas if we Datix and we say this happened on this particular night, then they have to look back and find out why it happened. ... they're getting the support."* (IC63)

Another participant reported that s/he had filed a report to highlight that staff were feeling vulnerable because there were no clear lines of accountability for decision-making;

> *"I just felt that it was useful because we do need an allocated physician to cover the unit, ... we need a clear process of escalating problems ... So I put the Datix in, not for any personal gain, but because I just feel that the unit*

> *and my juniors need to know quite clearly who they go to when they have a problem and how they escalate problems"* (IC49)

A number of participants in Phase 2 mentioned that their awareness of the need to protect themselves in case of something going wrong contributed to their decision to file an adverse event report.

> *"I was going to fill it in anyway to cover myself in case there was any errors or anything like that not done properly to the patient. ... And if I make a report that covers us to say we were under, we were short-staffed."* (IC45)

> *"[I filed the report] to cover ourselves, as it were, for the fact that, you know, we were powerless to do anything about that particular occasion"* (IC41)

> *"nowadays it's about, it's all about backing yourself up as well, do you know, because ... if things weren't done or if, for example, somebody fell and hurt themselves, it's something to prove how busy it was and that it's not that you were being, being lazy or anything like that, it's actually the situation of the ward and we didn't have any staff. You can't physically keep an eye on every single patient all the time."* (IC50)

One participant, quoted below, made it quite clear that, from previous experience, s/he did not believe that anything would happen to change the staffing situation as a result of putting in an adverse event report. Thus it was the risk of litigation, or of being blamed for something going wrong, which had triggered action to ensure the situation was recorded, rather than patient safety *per se*;

> ***Interviewer:*** *"Did you think to yourself "well I've put a report in now, something might happen?"*
>
> ***Participant:*** *What do you mean, after putting in the form? No, I didn't think that anything would.*
>
> ***Interviewer:*** *OK. Had you done one before ever?*
>
> ***Participant:*** *Yes, and nothing happened after, so I just, I don't even know why I did this but I think I was that bad working for four confused patients, therefore I have to do something just in case something happens during the day. ... they always said to us that if, you know, we have to report things like this because if anything does happen we're sort of, well maybe not covered but, you know"* (IC43)

Occasionally response to a focal threat appeared to be not only related to threats in the environment which were unconcerned with patient care, but actually detrimental to patient safety. Such actions were very infrequent with regard to individual staff

members, although a few such incidents were observed. These included a ward manager deliberately choosing to ignore a patient's calls for help in favour of continuing to accompany doctors on a ward round (OC29), a nurse responding to a relative's insistence that a patient should be out of bed and walking although uncertain if this was appropriate for the patient (OC32), and a nurse leaving the ward to have lunch despite saying they were short of staff to feed patients (OC29).

Where the Trust organisation collectively was concerned, many participants felt that its actions did not always prioritise patients, being, they perceived, more concerned with finance and less concerned about both the welfare of patients and their own staff.

> *"All they're worried about is money and if there's an empty bed, fill it as quickly as possible, and then they don't care if you're short-staffed and they'll send someone in that still need lots and lots of care"* (IC52)

> *"initially a sort of red rag rating was to show how concerned (the Trust was) ... (now) ... nobody says to you "oh you're red, oh and we'll come to help you." It's "you're red, OK, we'll get back to you" or "what are you doing about it?"* (FG)

6.2.2 Other influences on response

Just as in Level 1, decisions made about how to respond to a focal threat may also be influenced, often cumulatively, by risks of which the individual is not aware of considering at the time and/or their emotional state. All 27 participants in Phase 2 of this study were selected because they had completed an adverse event report citing insufficient staff as a patient safety issue. This was a specific behaviour which was identifiable as a discrete response to a perceived risk, and the interview protocol for Phase 2 participants was specifically designed to enable participants to reflect further on this action and to speculate about what perceptions of risk had prompted it.

It emerged at interview that although a belief that a threat to patient safety existed was ostensibly the focal risk, participants were, on reflection, able to identify many other influences on their action.

The following example is taken from these interviews, when staff were asked to try to recall their feelings and thought processes when they made the decision to enter an adverse event report on the hospital database. The following is an anonymised copy of one of the database entries:

> *"**Description of incident***
>
> *I am working in zone 3 today on ... (X ward). Unfortunately we are short staffed and therefore instead of having 3 nurses in ... (X zone) we only have 2. I have to look after 8 patients and my colleague 9. I feel that this is unsafe and patients care is compromised. I have 4 confused patients who are at risk at falls and I do not feel I can look after them as well as I should and this is dangerous"* (IC43)

As can be seen, the identified focal risk which prompted writing the report was a cognitive awareness of a shortage of nursing staff which in the opinion of the participant threatened patient safety. At interview, however, it became clear that awareness of other, different, threats, had also played a role in prompting the participant's action. These led to perceptions of risk which had emotional as well as cognitive elements and related not only to concerns about patient care, but to aspects of the situation which could have an adverse impact on his/herself. First, there was a concern that his/her own livelihood might be at risk if something went wrong:

> *"when I saw my shift, and I know we are short-staffed ... I'm just scared, I'm worried that something will happen to them and I know that's my responsibility ... and it's my job that is at risk"* (IC43)

From the interview transcript, it seems likely that, although s/he did not cite it in the database entry, the participant was to some extent aware at the time of this possible threat to his/her employment

> *"I just spoke to one of my colleagues and I think she said she would do one as well ... Because we both knew that ... they always said to us that if, you know, we have to report things like this because if anything does happen we're sort of, well maybe not covered but, you know....."* (IC43)

However, when she reflected on the incident during the interview the participant was also able to identify a fear that her own competence was insufficient to meet the challenge of having so many patients to look after. At the time she may have been unaware of this influence on her actions.

> *"I only qualified fourteen months ago and maybe that's why I'm so worried. ... I think people who have been qualified for longer, they learn not to worry that much."* (IC43)

There were many other examples of participants in Phase 2 retrospectively identifying concerns about risks which may not have been at the forefront of their thinking at the time they filed adverse event reports. These included worries about possible errors, risks of physical injury, and threats to the organisation.

> *"there are incidents where due to a nurse giving the wrong medication and the patient has died. So yes, there is always that at the back of your mind that, you know, when you try to juggle so many jobs"* (IC47)

> *"risks of cutting corners, I mean if patients, if a patient probably needs two ... (to lift them) and probably you try and do it on your own, risking your back or their back or even a fall for them or yourself"* (IC61)

> *"the thing that's worrying all of us at the moment is the current financial state of the Trust"* (IC41)

Some participants were quite clear that they had filed an adverse event report specifically because they felt staff on the ward were being put under unreasonable pressure. A number of other participants, though not directly identifying this as the focal risk, also made comments suggesting that the perceived effect on staff morale and welfare was a contributing factor;

> *"with only the two ... (staff) it also makes it extremely difficult if not almost impossible for them to leave for breaks if I can't find a break relief for them" (IC42)*

> *"My anxieties were safe working levels, because under the Health and Safety Act you need to be able to have a break and ... I was concerned about fatigue."(IC55)*

> *"team morale goes down hugely when there's a shortness of staff because you're run ragged"* (IC62)

For one participant the trigger for filing a report was having to work with an agency nurse who had put everyone's backs up, and was perceived as making a poor staffing situation worse rather than better;

> *"she upset the healthcare assistant that was working, was meant to be working with her, she upset the student nurse that was working with her,*

> *they all came down to the other end, you know, she just wasn't taking responsibility."* (IC44)

Participants also recalled feeling that staff shortages were preventing them from getting on with planned work, or were adversely affecting their own personal welfare.

> *"from a purely selfish point of view, not the least my working day and the other work I wasn't getting done because I then spent all day in there. "* (IC42)

> *"the whole thing that sort of fuelled it as well was I couldn't start my drug round early, ... When I got the trolley it was a mess, and all the patients have their own drugs, every time I sort of tried to do a patient – we're talking a busy medical ward, patients with lots of problems on lots of medication – I had to search,... and ultimately it took me three hours to get everybody's medication sorted."* (IC67)

> *"I didn't get a break. ... I know you've got to put your patients first but when you're not able to, to get away for something to eat until five o'clock, it's not efficient."* (IC53)

Thus the data in this section suggest that action ostensibly taken to address one particular threat may sometimes be affected, or even triggered by other cognitive and emotional influences of which people may be unaware at the time.

6.3 Summary and concluding remarks

This chapter has drawn on data from both Phase 1 and Phase 2 of the research to focus on the process of decision-making and behaviour in response to perceived risk from identified threats. It has offered a model of the process which distinguishes between two conceptual levels of decision-making. The first, Level 1, is concerned with prioritisation, i.e. the ranking of threats in the environment according to the degree of risk they are perceived to pose and selection of the most salient (in terms of the urgency and/or magnitude of the risk it poses). The second, Level 2, involves selection of a behavioural response, again a process which involves assessment of the perceived risks associated with each potential option for action. Application of this model to the observational and interview data demonstrated the effects of both cognitive and emotional influences on selecting and acting upon the most salient perceived risks.

Chapter 7: Different salience, different behaviour?

The two previous chapters offered, first, evidence from the research that hospital staff were aware of multiple, qualitatively different, threats in their environment, not only in relation to patient safety, but to other staff, the Trust organisation and themselves. Second, it was demonstrated that their subsequent behaviour represented assessment of the risks posed, selection of the most salient, and choice of the most appropriate response. These findings stimulated development of a conceptual model suggesting two sequential levels of decision-making between perceptions of risk and behaviour. The first of these levels involved selection of the threat assessed as representing the greatest degree of risk. The second, selection of the least risky from a range of possible responses.

This third chapter examines ways in which an individual's original perceptions of the salience of the risk posed by a threat may be affected by changed or contested perceptions of risk, sometimes resulting in different behavioural choices. An important aspect of this discussion is its exploration of evidence from both observational and interview data of the differential roles played by cognition and emotion in decision-making.

The chapter looks first at the most obvious influence in terms of changing perception of risk, awareness of a new and more salient threat in the environment. It draws attention to the temporal aspect of any decision-making situation, with different threats becoming more or less salient over time and according to changing circumstances. A currently most salient threat may thus, sometimes in an instant, be supplanted by awareness of a different threat perceived to offer greater risk, which must now be prioritised and acted upon. A number of examples from the data illustrate such unplanned re-prioritisation.

The second section considers another important aspect of risk perception, the extent to which different people, faced with the same identified threat, may disagree about the nature and importance of the risk it poses and about the appropriate behavioural response. In such situations one individual's views can be challenged by another

individual, though not always resulting in changes to one or other protagonist's perception of risk and ensuing behaviour.

Leading on from this, the third section deals with re-assessment of the risk posed by the focal threat itself. It first considers instances where the opinions of others, in particular those of greater status, affected an individual's perception of risk and their subsequent behaviour. It then goes on to show that, more subtly, but perhaps more importantly, new group or organisational norms could also have an effect in changing an individual's thinking and behaviour. The section then looks at what can happen when the perceived risk posed by the current threat is increased or diminished, either over time, or as a consequence of changing circumstances.

The final part of this chapter is devoted to examining some important evidence which suggests that even where the both the threat and perception of risk it evokes remain exactly the same, and are experienced by the same person, a completely different response may be made on a different occasion or under different circumstances.

7.1 Changing salience of threats under different circumstances

This section looks at various examples from the data in which decision-making and behaviour were affected by changing perceptions of risk following recognition of a more salient, i.e. greater or more important threat than that originally selected, prompting a different response .

The examples of conscious prioritisation in the previous chapter demonstrated that staff were aware of making conscious decisions about tasks they needed to prioritise in certain situations. It is also evident from the data that, given the varied and unpredictable nature of work on a hospital ward, contingencies could and did arise during a shift that forced them to recognise a more salient threat and abandon previously determined priorities. Under such circumstances the assessment of the degree of risk posed by the original threat remains unchanged, it is simply that the risk from the new threat appears even greater.

Often it was perceived threats to patients requiring urgent or different action that would override previously made plans. For instance, an unexpected deterioration in a patient's condition could prompt a reorganisation of nursing staff "*I wouldn't leave a very junior person with a very sick patient*" (IC18), or hold up a planned activity like a routine admission (OC45). A patient perceived to be at risk of falling was a frequent disruptor of routine activities. On one ward, staff had been told that if particular patient insisted on walking on her own, one of the staff would have to stop what they were doing and follow her with a chair (OC45). On another occasion a nurse was observed abandoning a ward round and ignoring a ringing phone in order to prevent a patient climbing over the bed safety rails (OC29).

While such occurrences were unpredictable, staff were nevertheless aware of the likelihood that new threats could, and often did, arise. Since they were generally under pressure even to complete the tasks assigned to them, there was no possibility of factoring the need to respond to the unexpected into their schedules. So they were conscious that new risks could arise and priorities might have to change during the day.

> *"you kind of come on shift and you prioritise things in your head and it never works out that way because everything's sort of constantly changing. Like things I'd prioritise say for instance today, things I'd prioritised this morning have now completely changed at two o'clock because the capacity situation has changed. ... So you're continuously changing it ... you're constantly going over like a checklist in your head. "* (IC51)

> *"that is a typical day, things don't go as planned because something else comes along that needs priority"* (IC26)

> *"you come in in the morning and you sort all these things and then you reprioritise them as things are going on, so something that was very important suddenly doesn't become quite so important because something else has happened."* (FG)

Unplanned, but conscious, re-prioritisation of care tasks thus involves becoming aware of a threat to fulfilling patients' requirements not considered in advance, or re-evaluating a threat to patient care previously rated less important. However, awareness of and response to a new, more salient threat may not mean that the previous prioritisation process was necessarily explicit, nor may it be recognised that a

substitution has occurred. In the following examples, all taken from observational data, it seems unlikely that the individuals involved were specifically aware of the choices they had previously made or the changes they were making to accommodate the new situation.

The first example of consciously changed behaviour in response to a new threat appeared to be simply a case of someone having forgotten to fulfil all the requirements of a planned task. A nurse was observed donning a red apron to go into a side-room where control of cross-infection precautions were in force, reappearing a moment later to collect the gloves s/he had failed to put on in the first place (OC25). On another occasion, in a change of behaviour prompted by a change of circumstances, a group of doctors were waiting for a nurse to accompany them on a ward round. After standing around for a while their conversation indicated that they felt the risk of being late for other things on their schedule was greater than the risk of having inadequate information for decision-making about patients and they started the ward round without a nurse (OC20). In another example, a piece of equipment in general use was taken into a side-room occupied by a patient with an MRSA infection, because the correct equipment could not be found. In this instance it was evident that the nurse consciously recognised the threat (danger of cross-infection) and commented that this meant the equipment would have to be cleaned after use (OC43).

Perceptions of threat of sanctions could be highly important in shaping staff behaviour. One example of a change of behaviour following conscious re-prioritisation concerns the actions of the consultant cited previously (OC15, Table 6.1, Chapter 6). Here, it appeared that the presence of the observer had been seen as a different and more salient threat (creating a risk of possible reprimand for not observing control of cross infection measures) from whatever risk (lateness? inconvenience?) had prompted the consultant to leave the ward without cleaning his/her hands. Note that this analysis is not able to indicate the extent to which the consultant was originally consciously aware of making choices about whether or not to wash/use gel on leaving, only that a conscious choice was made to behave differently following perception of a new threat.

As will be discussed further in the next section, different individuals do not always agree about the degree of risk posed by a threat. Between members of staff on a hospital ward such disagreements are frequently resolved, without the need to change anyone's opinion, simply by invoking authority. In the following example a ward manager described a situation where his/her perceptions of risk differed from those held by more junior staff;

> *"a patient almost arrested, ... that tends to escalate anxiety levels up and people tend to cluster around the area where things are happening. So the challenge then is to pull people back, get them redistributed back to where they need to ... (be)."* (IC18)

Here, the junior staff involved may or may not have changed their own assessment of risk which had caused them to attend the emergency, but their behaviour was consequent upon a new perception of risk, that of failing to obey an order.

In these examples, perception of the degree of risk posed by the previously selected threat remained unchanged and changed behaviour resulted from perception of a new and more salient threat. However, an individual's assessment of the risk posed by the original threat can also change. Sometimes this could come about as a result of their assessment being challenged by another person or group The next section considers the influence of such contested perceptions of risk on hospital staff in this study.

7.2 Contested perceptions of risk

Of course disagreements about the best treatment for patients (i.e. that carrying the least risk of a bad outcome) are commonplace in healthcare, where there is often no unequivocal evidence of the 'right' way to proceed. During the observation sessions there were a number of occasions on which such clinical dilemmas were noted. For instance, a clinical educator commented that the times patients who had had the same operation were kept in hospital varied between different surgeons (OC11); a doctor was overheard telling staff "*I'm sending ... [name] to coronary care. I know it's a bit controversial but .....*" (OC56); and a clinical educator and a ward sister argued the relative merits in terms of avoiding cross-infection of emptying patients' washing bowls down the hand-washing sink or in the sluice (OC01).

Clinical dilemmas of this nature were also reported by five staff at interview. Three recounted a conflict of views between nursing and medical staff;

> *"Generally it's doctors that frustrate us because ... we know what we want to do, we know what they need but it's getting the doctors to actually come and do what we want. ... a lot of the times we can't even get a Registrar to come and see a really poorly patient up here, we have to call the critical outreach nurses a lot to come and see our patients."* (IC58)

> *"I was really concerned I had to ring the registrar, that I wasn't quite happy on how the doctor was handling the patient."* (IC08)

> *"Sometimes you're like "come on, come on, you know "do something with this lady, she's bleeding buckets here"."* (IC09)

One participant was concerned about the practice of putting up guardrails to prevent confused patients getting out of bed;

> *"it's an abuse to tie them in a bed. You can't tie them in a bed, can you? You can't do things like that. I think it's an abuse really to have those handrails like that but then again it's for their own safety isn't it? ... Its difficult , so which way, what do you do?"* (IC36)

and another was incensed with catering staff who did not appear to realise what was and was not suitable food for the patients in her care,

> *"I was on the warpath yesterday. ... for my puree patients, they'd taken the porridge off the menu and put muesli instead so we're having a running battle with that ... [because that means] all they can have is Weetabix, if you don't like Weetabix what do you have. "* (IC29)

However, more frequently noted were contested perceptions of risk where it seemed that there was disagreement about the nature and importance of the perceived threats and the risks they posed. Hence there could be conflicting views about the relative importance of financial and treatment risks;

> *"we're only supposed to use pumps if there's a specific problem, because there's just not enough pumps to go around basically but I'm of a mind, especially the elderly, that every person that's got fluids up should go through a pump so it runs on time at the right rate ... I think that's quite important but that's obviously a monetary issue you know."* (IC23)

or about the risks involved doing a task quickly (enabling more patients to be cared for in the time available), or more carefully (to reduce the risk to a specific patient);

> *" I don't like ... [using ordinary sheets to move patients]. They shear and they cause pressure sores and I don't like them and I don't like to see nurses use them ... if I'm with somebody and they'll go "oh we just do them on the sheet". I'll go "no we won't ... I'm not going cause them to have a pressure sore, just because you want to do it for quickness" so I'll go and get a slide sheet"* (IC33)

or about the importance or otherwise of following particular safety protocols;

> *"that doctor came up and asked me to give the insulin, I said "no" and then to back me I got one of my colleagues who is a diabetic link nurse. I said "it's not me that's ...", she said "no that's hospital protocol ... that is the protocol we don't do it".* (IC10)

One very frequent instance of contested risk perception was apparent confusion about the actual threat posed by cross-infection. Hence an infection control nurse defended inconsistent and non-standard use of protective aprons by ward staff on the grounds that as long as staff were thinking about infection control, any method of utilising aprons was acceptable (OC07), and there were more stringent rules regarding safe (i.e. low risk of contamination) styles of hairdo for military than for civilian nurses doing the same job (OC15). As well as contested perceptions of the risk from infection within the hospital, several interviewees argued that the public perception of the dangers of hospital acquired infections, fuelled by media reports, was much exaggerated,

> *"If you're looking at it from an aspect of an infection for instance, MRSA or C-diff, they kind of blow things out of proportion. You know I think it is well controlled and they do get, the NHS and the Trust do actually try to you know get it under control as much as possible."* (IC35)

> *"I think we see the more reality side of it in a way because we know what the MRSA procedure is. ... There's lot of people that come in with MRSA and that's never ever highlighted in the press. It's always the hospital's fault"* (IC01)

> *"I don't think they [the media] realise. ... they go on about MRSA and C-Diff and things like that. Yeah it does happen in the hospital but we do have precautions and we do get rid of MRSA and people do get rid of C-Diff. Not everybody dies from it, not everybody loses limbs through it"* (IC33)

Staff also sometimes found themselves contesting relative risks in relation to standardised safety procedures, as in this reported incident where burning toast, quickly removed, had triggered the fire alarm.

> *"with my fire training, we are taught, you know, the first sign of any smoke, we're supposed to break the bell. But myself and my colleague had a considered discussion about it and we realised that if we broke the glass, ... it's going to cause absolute chaos throughout the whole hospital. So we had to make a considered decision about that and that felt quite responsible. I don't think there was anything that really left the patients at risk.* (IC18)

Another participant, a senior nurse, questioned safe drug administration policy which dictated that staff administering medicines should not be interrupted for any reason, even when patients clearly needed immediate help

> *"How can I honestly put 'do not disturb' placards? I can't, I'm sorry I couldn't do that. I know I'm supposed to, I don't do things that I should do but I've got to think of my patients"* (IC20)

A further example of the different perceptions of risk held by different groups, was disagreement over the contribution to patient safety made by ward design. The old single sex 'Nightingale' wards with their rows of beds were designed to allow staff to see at a glance which patients needed help However, during the 1960's and 70's such wards began to be seen as putting patients' dignity at risk. The NHS response to heavy public and media pressure was to replace them, first by mixed sex wards divided into 'bays' male and female patients in separate bays of four to six beds, and later (1980's and 90's) to build new hospitals with a large proportion of single rooms. These offered good infection control and privacy, but were seen by many nurses in this study as unsafe because patients were unobserved for long periods.

> *"We do like hourly checks now, and the patients have been passed away for ages and you've got no way of – you do put the resuss call out because you have to, but you know that the outcome is going to be nothing really"* (IC58)

However, disagreements about what is or is not safe do not necessarily translate either into changed perceptions of risk or changed behaviour on the part of individuals. The next sections consider examples of situations in which a changed response to an identified threat did occur.

7.3 Same threat, changed perceptions of risk, changed behaviour

7.3.1 Changed perceptions of the nature of the threat

It seems obvious that new information may be influential in changing perceptions of risk. In the healthcare sector clinical decisions, for instance, are regularly altered in the face of new evidence about effectiveness from scientific trials. On one observed occasion a family member withdrew their objections to a patient's discharge after a nurse detailed all the investigations and referrals which had been carried out (OC28). New information also tends to be particularly salient if delivered by someone with perceived status and/or expertise. For instance, one participant recounted how a relative had insisted on discussing a patient's care with a doctor, rather than a nurse (IC03). An example from the observation data involved an incident where perceptions of the urgency of treating a patient escalated following assessment by a specialist nurse (OC45). Notes taken at the time are provided here without editing, observer's comments on the situation, added contemporaneously, are underlined.

> *Very ill pt from theatre (had cardiac arrest, is unstable diabetic) coming to ward because said to be no beds on ICU. Before pt arrives doctor talks about pt as if unreasonably extra sensitive - "she vomits if you talk about arrest, it isn't really a proper arrest". (Hence lowering staff perception of risk).*
>
> *Specialist nurse (Critical outreach/PORT nurse) arrives on ward (thus upping the ante re ill pt). Sends for cardiac monitor (ward doesn't have one) and does ECG. (Massively increases everyone's perception of risk re this pt.)*
> (OC45)

Apparently in this instance, staff perceptions of the degree of severity of illness and the amount of care required for a patient changed from low risk, following the comments made by the doctor that the patient hadn't had "*a proper*" cardiac arrest and was just "*extra-sensitive*", to high risk following further assessment by a specialist nurse.

While people are likely to be aware of revision of perceptions of risk on the basis of new information, perceptions of risk can also change following a revision of individual beliefs, attitudes and values. There is evidence from this study of some staff revising their thinking about what was or was not adequate care to offer patients. It is not

suggested that this was a conscious act; rather that without their recognising it a change in attitude had taken place. This could have happened in order to comply with authority; to align their thinking with a different social norm, or to conform to new local standards; or to ameliorate the psychological discomfort of not being able to look after patients properly because of a shortage of staff[124].

For example, this comment from a staff nurse appears to suggest a psychological adjustment to justify not being able to give patients a thorough wash;

> *"at the end of the day, no-one's going to die not having a wash are they"* (IC07)

A ward manager made a similar comment implying that, because an elderly patient was unlikely to have a top to toe wash every day at home, it was therefore acceptable to replicate this in hospital;

> *"you have to prioritise the care, don't you ... So if there's something we can cut, ... [for instance] a bed bath every day, top to tail, things like that ... they don't do at home, so [we] make sure that obviously they get priority care, their hands, face, their bottom and pressure areas."* (FG)

However, despite such possible changed perceptions of risk about specific tasks, the participants in this study all indicated that they believed that a shortage of staff was putting patient safety at risk. Nevertheless, although their comments indicated that they found this emotionally stressful most people did continue to work under such conditions. One plausible explanation is that many staff revised their perception of the risk from one which they might be expected to do something about to one they were helpless to address. The following quotes from three participants add credence to this;

> *"I have learnt to deal with the fact that I can only do so much, it's such a valuable saying and until you actually understand it, I mean it's alright if you're saying actually, until you actually sit and acknowledge that you can only do so much."* (IC51)

[124] Such possible influences on staff attitudes and values form part of a more extended discussion on staff perceptions of risk in Chapter 8

> *"Sometimes I do think "oh that weren't done" and you do feel bad, you know sometimes you think "oh I should have had enough time but there wasn't enough time for that" and I've started to think "well I've done my best. That's all I can do"* (IC40)

> *"you tend to just, I don't know, you just, you get on with it, but I suppose, you know, you realise that, you know, we needed another nurse, another nurse was needed but we knew we weren't going to get one ... there is a point where you have to say "no, I've done what I can for that shift and that day and, and there's nothing more I could have done more"."* (IC47)

This strategy did not appear to totally reduce the stress experienced by participants, however, it was notable that most who said they found their situation very difficult, or even unacceptably stressful, were relatively junior staff working directly with patients. Those further up the organisational hierarchy expressed fewer feelings of stress, indeed, one person articulated the difference moving into a managerial role had made to the way s/he felt about work. One possible reason for this difference was that the further away an individual was from direct delivery of care, the easier it became cope with the emotional stress produced by current working practices.

> *"I don't think about work when I'm not at work. I did when I was a ... [ward manager] constantly. ... Because I think on the ward you feel so responsible for anything and everything all of the time."* (IC64)

7.3.2 Assessment of risk changed by circumstances

The previous examples illustrated changed behaviour following a changed understanding of the nature of the threat itself, as a consequence of new information or a revision of individual attitudes, beliefs and values. In addition, a threat might be assessed differently under different circumstances, as perceptions in general are very context specific.

The research data offered many examples of how different contextual circumstances could affect risk perception and response to what was essentially the same threat. For instance, on one observed occasion a nurse collected a patient from a side room where infection control procedures (entailing the use of red aprons and gloves) were being followed. S/he refused to wear a red apron when asked to by ward staff on the grounds that the patient was now being discharged. Later that day the same patient,

isolated while on the ward, was observed sitting with a number of other patients in the 'departure lounge' where patients awaited transport home (OC14). This incident appeared to suggest that a change in designation, from 'in-patient' to 'discharged patient' also changed perceptions of the risk of cross-infection.

The different physical layout of wards in the new hospital had also increased perceptions of risk to patient safety from staff not being able to observe them properly; such that a ward manager had provided desks and reading lights for night staff to ensure that they could see the beds (OC42), and the Trust management had instituted signed forms to confirm all patients' condition had been checked by a registered nurse on an hourly basis.

Another illustration of how perceptions of risk could be affected by the context was given by a participant from a specialist ward for patients with heart problems who complained that the emergency resuscitation team responded less urgently to calls for help from that ward than they would if summoned to one of the general wards.

> *"When the arrest call goes the crew don't get here. The crew are only down the road here, it should take them two minutes. We've usually done two cycles of CPR or shocked somebody by the time we've got the resuss team here. ...That's about five minutes, maybe longer. ... They don't rush. They just walk on to the ward, because of where we are and who we are, they just assume that we've got it covered. "* (IC58)

In other words, the emergency team perceived the risk of a poor outcome from a heart attack as being diminished by the presence of more highly skilled staff.

Perceptions of risk could also generalise to situations which, though not exactly the same as previously, were nonetheless similar to circumstances which had previously led to a poor outcome. Hence the following participant, having had negative experiences with agency staff, acted on a perception of risk which encompassed all staff not actually employed by the Trust, without having any evidence of the competence or otherwise of the particular individuals involved.

> *"there's two staff that aren't familiar with the Trust. ... and we have had incidents occur prior to this with agency staff members ... I actually took one of my own staff from ... (another ward), one of the healthcare assistants*

> *from there which left them short, but it's a matter of, you know, sort of juggling risk really."* (IC42)

The passing of time may also be a key influence on perceptions of risk. For instance, perceptions of the risk posed by infection, which had gradually reduced with the introduction of effective antibiotics, led to lowered standards of infection control and hygiene through the latter half of the 20th century (see Chapter 4). Although it gradually became apparent that antibiotics could no longer be relied upon for infection control, raising anxiety in medical circles about their reduced effectiveness, it was the (re)discovery by the general public of high rates of hospital acquired infections (HAIs) in the early 2000's that really changed, the perception of the risks involved. The observation sessions for this research were conducted during the height of this media fuelled public anxiety about HAIs such as MRSA and C Difficile.

> *"I think the general public think we're full of MRSA and we're full of bugs, every where's filthy. "* (IC09)

Suddenly, it seemed almost overnight, everyone was talking about 'dirty' hospitals and what to do about them and NHS hospital trusts, though aware that the actual risk to patients was being amplified out of all proportion, nevertheless changed their behaviour in response. Disinfectant gel dispensers appeared outside and inside ward doors and large notices exhorted staff and visitors to gel their hands before entering and leaving the ward. Interestingly, although the evidence indicated that gel was no more effective than hand-washing, and hand washing had been part of good nursing and medical practice since the days of Florence Nightingale and Semmelweiss, staff were now expected to do both. As a clinical educator explained, nurses being seen to wash their hands was important for their public image (OC13), suggesting that the 'real' risk was that other people would lose trust in the safety of the care provided.

On the other hand, passage of time may lead to familiarisation to a particular threat, with a consequent reduction in the perceived magnitude of the risk involved. For instance, it was observed on many occasions that patients' buzzers were not immediately answered, despite a large number being in side rooms where their condition could not be continuously monitored. On one observed occasion a buzzer was ignored for 15 minutes, even though staff were in and out of the same bay, and

the nurse in charge went off for a break with the buzzer still going, saying to other staff before leaving the ward "*Everything hunky dory then?*" (OC25)[125]. Such behaviour was more frequent where staff felt stretched and where there were numbers of confused and elderly patients, who were inclined to make what staff perceived to be non-urgent requests for attention. Although there was an obvious risk that someone was calling because they suddenly felt unwell, this was in fact rarely the case and the unacknowledged general perception appeared to be that the risk of serious harm to patients from not responding immediately was low.

An exception to this general behaviour came from a senior nurse who recounted an incident in the past where s/he had not answered a patient's buzzer immediately, with what could have been very serious consequences, saying that since then s/he had prioritised all such calls.

> *"(it) stems from many years ago when somebody rang a bell and this young lad who was not a patient just casually walked out and said, "Oh Bill's bell's been ringing a long time ... can somebody come and sort him out?" And I went in there and this poor man was on a cardiac monitor and he was flat lining [having a cardiac arrest]. ... and since that day I've become quite, if there's a bell ringing, I want to know why it's still ringing, why isn't somebody answering it?"* (IC20)

In this case perceptions of risk in relation to a particular threat appeared to be resistant to attenuation because of the experience of near catastrophe. In a similar example, a participant recounted how a patient was nearly given the wrong dose of a drug because s/he, a junior nurse, had not checked the original prescription as well as the dose drawn up by another more senior nurse, an incident which appeared to have had a lasting effect on his/her behaviour.

> *"I hadn't checked with the prescription, she just came to me with an insulin ... I'm expecting thirty units, it is in date, its not expired or anything. I said "yeah", so it was actually prescribed only for sixteen units ... Now it reminds me to check with the prescription for anything, I just you know. I don't just*

[125] NB The researcher had of course no way of knowing to what extent staff had already assessed the risk that ignoring a summons from this particular patient represented and whether this behaviour was or was not appropriate

> *believe the people what they're saying, let me just check it and I just look in the paper"* (IC39)

Attenuation can also occur at an organisational level. The Trust was perceived by all participants to have developed a diminished perception of risk concerning the issue of safe staffing levels[126]. The following quotes exemplify the many unprompted comments made by Phase 1 participants about the extent to which reduced staffing had become the norm.

> *"patient care ... (is) being affected by inappropriate and inadequate staffing levels"* (IC19)

> *"I can remember years ago ... if you were struggling, more staff was found for you. I don't feel that anymore, it's like you have to cope ... I just think really we should be supplied with more staff "* (IC28)

> *"the workload, the number of staffing, it's always a problem"* (IC35)

Of particular note was the apparent change in the way the 'traffic light' risk assessment algorithm was applied in practice. This suggested that instead of green (correct staff/patient ratio) being the norm, it was now seen as over-provision;

> *"they run the numbers on amber staffing which is the minimum. ... in some cases we do have the staffing at green but that's not very, very often. It's normally just red and amber "*(IC46)

> *"if we're green which is a normal rating, rag rating, they take our staff from us and take, and redeploy them elsewhere"* (IC58)

Members of the focus group, who all had management roles, agreed with the view that "*amber is the new green*", with the following interchange about the system indicating two opposing perceptions of how that changed situation should be represented;

> *"Participant A: Amber's useful for people, ... it reflects that fact that it's not unsafe but it's not green. ...*

[126] Indeed it was the numerous comments made to this effect by Phase 1 participants which suggested investigating this issue further in Phase 2 by looking specifically at instances of low staffing levels being recorded as adverse events.

> *Participant B: ... But then on the other hand why don't you then turn around and say "well if amber is still safe, why do we have green?"."* (FG)

Some participants expressed anxiety that ward based staff had also become used to working with staffing levels at amber,

> *"it gets to a stage where not only me, nurses are just accepting it, you know, ... and I feel that's what is worrying, it is becoming the norm now."*(IC47)

which may account for the evidence from the hospital statistics[127] that, although encouraged to report staffing levels which they believed compromised patient safety, most had never done so. Participants in Phase 2 were exceptions to this general tendency. All but one of them said that, as well as the Datix entry they were being interviewed about, they had reported patient safety being at risk because of insufficient staff on several previous occasions. One of these participants said s/he always wrote an adverse event report if the situation warranted it.

> *"I do a Datix every time. ... even senior nurses who I respect will say to me " ... [name], don't worry about a Datix, just email me". And that concerns me because it's not going to patient safety, because I know it stays within the unit. ... I think it's, if there are patient safety issues there should be a Datix."*(IC56)

However, the rest admitted that they had not done so every time they felt it would have been appropriate;

> *"we'd be doing a Datix, Datix, Datix every day because we're always short-staffed."*(IC58)

> *"there's been a few other shifts that I've been borderline. ... I probably could have, should have probably written them but I didn't."*(IC54)

These data raise the issue of why staff, perceiving a new threat to patients (shortage of personnel), did not always take the one step available to them to influence the situation (submitting a Datix form). Participants' narratives offer two possible and complementary explanations. First, obviously enough, was that to take time out to fill in the form risked having even less time to care for patients;

[127] From numbers reporting on the adverse event database compared with numbers of staff employed

> *"they [staff] look at the Datix and think "it's another thing that we have to do." and it isn't always done."* (IC55)

> *"I've got so little time to do what I need to do. ... because I'm multitasking and having to cram as much as possible in to the time available"* (IC41)

> *"it's just there isn't a lot of time to fill in Datixes. ... you just say "Oh God! it's happened again, oh I ought to do a Datix, I haven't got the time"."* (IC66)

Indeed, one participant had even been reprimanded for doing so, "*I was questioned once and asked how did I get the time to fill a Datix in if I was so busy*" (IC56).

Another possible explanation was a general belief that no-one would take any notice of the complaint. One participant, when asked, stated the situation quite bluntly, saying that s/he had not believed anything would happen after putting in the Datix because s/he had done so once before and nothing happened then either (IC43). Others made similar comments;

> *"usually we sort of manage, because we just feel as if they've, we do these Datixes and they just fall on deaf ears because nobody seems to be that interested in the fact that we're really struggling"* (IC58)

> *"although now Datixes are done electronically, they are seen, I don't think that it's much improved. ... And I do believe that they are seen and scrutinised now, but I didn't expect an awful lot to be done, because historically I think it has never been done."* (IC56)

> *"If I'm honest, nothing. If I'm honest, I didn't expect anyone to kind of, I mean I thought that my manager might have kind of had a word with me about it and kind of raised, you know, any concerns that I had, but I didn't get that. I then thought that maybe one of the band sixes who apparently read, they read, they get the emails or something from the Datix, I thought that they might have kind of said to me "Oh I saw that Datix you put in", but no one's said anything to me about it."* (IC44)

Although it was generally felt that reporting staffing issues would not have any immediate effect, a few senior nurses took the longer view (apparently shared by management since staff were adjured to record any incidents) saying they always urged staff to take the time to report a problem with staffing because cumulatively they might, and (in one reported case) sometimes did, have an effect.

> *"I've encouraged the girls and I keep going back to them and saying ... it's very, very quick. You've got it there ready, you're not wasting any additional*

time, the more times they see that you do not have cover for your role, ... the more they'll see they'll need to bring an extra additional staff member on or change the way the working pattern is arranged. But it is volume, because I've been asked, "oh I've put it in once, that'll do" – no, volume does what it says, it speaks volumes.".(IC55)

"Truthfully I didn't think a lot would happen, but obviously it needs to be raised as an issue, but I hoped that we would get some more help and that because it was highlighted in that manner, then it would be more of a priority." (IC42)

"I've put loads [of adverse event reports] in over my career to do with staffing ... I used to put about two or three in a shift. ... there was one particular ward ... I think eventually, I don't know what happened but they did change the staffing ratios." (IC67)

7.4 Same threat, same perception of risk, changed behaviour

So far this chapter has explored evidence from the research which illustrated how risk perception and consequent choice of behaviour could change in response to new information, changed attitudes, alteration of circumstances and as a result of the passage of time. This section seeks explanations for a more counter-intuitive phenomenon; how, despite circumstances remaining the same and assessment of the risk posed by a threat remaining unchanged, the behavioural response may not always be the same. This can happen either because individuals decide for some reason to change their response behaviour, even though retaining their original assessment of risk, or as a result of an emotional reaction which overrides a previous more cognitive assessment.

7.4.1 Cognitively prompted behavioural change

The last section gave examples of ways in which changed attitudes, beliefs and values in relation to a particular threat may change perceptions of risk and thus a person's response. In contrast, the first point to make here is that people may say and do things which do *not* reflect what they actually think or believe, either because they believe themselves to be forced to behave in a particular way against their will, or possibly just because they find it simpler to 'go with the flow' and not question orders or behavioural norms with which they disagree. In both such circumstances they retain their original assessment of the risk from the focal threat and, under different

environmental conditions, may well revert to behaving in a way which reflects that perception.

Two examples from the data illustrate situations where medical staff and nurses were in conflict about the correct way to treat patients. In the first, a nurse recounted a situation in which s/he believed a patient was at risk of death without medication. The doctor disagreed, but changed his/her behaviour and prescribed after the nurse threatened to file an adverse event form.

> *"... (the patient) was tachycardic, a hundred and fifty three. ... and the patient was not treated but I did tell the SHO on call and he, he didn't want to, he said he was in AF[128], you know, downstairs so probably he, he has got a history of AF, so that's his view. ... and I informed the doctor that you need to start him on Digoxin or involve medical team if you can't do anything about it. And if this patient has got a, had a cardiac arrest or like ventricular failure or anything like that, it's not my responsibility, so probably I would document it otherwise. So probably I'd like to do an incident form also, that we don't deal with it. So he did give Digoxin after that"* (IC02)

The second incident involved a disagreement between junior nurses and the doctor in charge about the appropriateness or otherwise of continuing resuscitation after a cardiac arrest. On this occasion the participant, a more senior nurse, was able to use his/her position and the threat of taking the matter to a higher authority to induce the doctor to comply with the different risk perception of the nursing staff.

> *"nurses were in tears, you know, the doctor was very stressed, was getting quite angry because we were challenging him. And I actually walked in on this scenario ... and actually we had a big confrontation and we were saying, this is not the right thing to do ... I've since taken matters further ... this kind of behaviour was inappropriate and I feel that we do need to do something about it.* (IC18)

In another instance a participant reported a doctor changing his mind about reviewing a patient because relatives were insisting on it.

> *"I asked the doctor to review a patient the other day, because the relatives wanted a doctor to see a patient, and he wasn't really interested. And it was*

[128] atrial fibrillation, a common heart condition

> *like well it's not me and yes, I understand your point as to what you're saying, I understand that, but the relatives want a doctor."* (IC03)

In all these incidents medical staff, who would normally expect to make uncontested decisions about their patients, apparently changed their actions after recognising a new threat, that of possible adverse consequences for themselves. While there is no actual evidence either way, it is reasonable to assume from the narratives that the doctors in question may not have changed their original assessment of risk, merely their behaviour.

Similarly, nurses might see themselves as forced by circumstances into working in ways they considered unsatisfactory. The following participant was not happy about a new way of working imposed by the ward manager;

> *"I don't know the other patients. I have no idea what they can and cannot do whereas when we used to have, I know it used to take a bit longer but you used to have a proper report. We used to sit in on everybody's, all surgical patients. One of the advantages it was, we had a rough idea of all the patients basic and what I didn't pick up on but the other girls would have picked up, see what I mean."* (IC27)

while another was concerned about new protocols for doing observations (which s/he saw as inadequate);

> *"My understanding was always do obs, but protocols, when you do it through protocols now, sort of day four post-op you might just do the blood pressure or you might just do the temperature. So you don't have to do the full standard of obs unless there's other clinical reasons suggesting that you should "* (IC07)

and many staff disagreed with the concept behind the new hourly charts that they had to tick to say that a patient had been seen;

> *I hate them because they're just, as far as I'm concerned it's a load of old rubbish.* (IC52)

The stress engendered by these discrete examples of having to pay lip service to things with which one disagrees is likely to be relatively trivial. More pervasive, however, is the stress generated by feeling continuously obliged to behave in a way which goes against one's fundamental value system, a key part of an individual's self concept. The

great majority of participants in this study reported great and continuing concern about the extent to which they had to compromise about the care they believed necessary for their patients. Despite that, they had continued to come to work, rather than to go off sick or even leave. By remaining in post and assenting to lowered standards of care the study participants needed to behave in a way which conflicted with these personal values. This threatened their own self-image as a 'good nurse', for whom patient safety was top priority.

As noted in the last section, participants appeared from their narratives to cope with the stress this caused in one of two ways:

1. Altering their beliefs and values: For a few participants the dissonance between their behaviour and their value system appeared to have led to an altered cognitive perception of the degree of risk involved in running wards with insufficient staff, and a consequent belief that the revised practices represented acceptable care. This was reinforced by organisational norms which reflected government pressures to meet financial targets.

2. Disclaiming personal responsibility: Most participants, however, appeared to tolerate the situation most of the time and reduce the dissonance by viewing themselves as doing their best in a situation they were unable to change. Comments such as "*I've done my best. That's all I can do*", suggest they were seeing themselves as people who are performing to the highest standards of which they were capable, rather than as falling short of what they believed they should be doing.

Such accommodations to stress reduced perceptions of risk and enabled individuals to work under conditions they might otherwise have found intolerable. However, the evidence suggests that under certain circumstances the risk posed by having insufficient staff could again become the most salient, resulting in new action being taken to reduce it. As noted in the previous section, the Phase 2 data came from members of staff who had, on a particular day, perceived the staffing situation to be less tolerable, i.e. more risky, than on previous occasions. They then made a conscious

decision to act to decrease the risk to patients in the only way that appeared to be open to them at the time, they would file an adverse event report.

7.4.2 The crucial role of emotion

Bearing in mind that these participants had not always filed a report when staffing levels were dangerously low[129], what was the crucial new factor in the situation on the day selected that triggered action, when previously, under the same circumstances, no action was taken? The data, as illustrated in the example below, suggest that the reason for the changed behaviour in these participants was an emotional reaction to perceived risk, overriding their previous cognitive acquiescence to the situation.

> *"A Datex? Not about staffing, no. ... this was the first time and I just completely just took my feelings out there and just said how it was."* (IC44)

This finding should not have come as a surprise since there is ample evidence from the literature of the key role played by people's feelings in risk perception and decision-making. The underlying influence of emotion on risk perception, choice, and action was also implicit in much of the narrative data reported in this research, particularly when participants talked about not being able to do all they would wish to do for their patients[130].

What was unexpected however, was that the data from Phase 2 of this research would demonstrate so clearly a discrete and unequivocal link between changed risk perception consequent on an emotional reaction, and the new decision-making and behaviour which followed it.

Sometimes the emotional reaction seemed to come on very suddenly during a working shift;

[129] Except for the single participant , noted earlier, who reported always entering an adverse event report

[130] See Chapter 6 for examples

> *"I'd finally got to the point where it was this, you know, this can't go on. ...This has kind of pushed the straw that's broken the camel's back, if you like."* (IC42)

> *"I was just pushed to my limit and ... I just couldn't, I just couldn't take it anymore."* (IC60)

> *"this one night that it just got beyond a joke really, you know, and it was just, you know, you can tolerate so much ... So I think that night I just really, I had enough, you know,"* (IC51)

others reported feeling something must be done immediately they came on duty;

> *"the incident form, I've, I did it as soon as I started my shift. ... that was actually the first thing that I did in the morning. ... I realised that once again, you know, it's not going to be a good day"* (IC43)

> *"when I came on duty I knew I would be putting a datex in because I knew that it wasn't an acceptable staffing level"* (IC60)

Although the behaviour, filing an incident report, was the same, participants differed in the type of emotion that generated this action. For some, fear appeared to be dominant, this could be a generalised feeling of dread;

> *"I stood over in the treatment room and I'd, you do feel like it's just overwhelming, it really is overwhelming"* (IC56)

> *"it was just like we was being hit with rocks!"* (IC61)

> *"it feels like completely unsupported ... and it, it really was, it wasn't a good situation"* (IC42)

fear of adverse consequences for patients;

> *"Because of patient safety, because I feel strongly that yes, we're working busy, we'll get sicker patients, but we worked through that night really on a wing and a prayer like we do a lot of nights, and it only takes one small, a series of little events to cause a catastrophic one."* (IC56)

> *"there are times when we are so thinly spread, very, very thinly spread and you feel that, you know, you're a hair's breadth from something disastrous happening"* (IC41)

> *"Workload heavy. Insufficient staffing levels to cover basic needs of patients. Patients having to wait for cares. Antibiotics given late ... Not enough staff to do observations in the morning. Patients in wet beds waiting to be changed patients on bed pans to long, not able to answer bells immediately"* (IC52 – Datix entry)

or fear of adverse consequences for themselves or other staff.

> *"I don't care about budget, if you want, if you're talking about patient safety and, and actually you're putting our registration at risk when you leave us short like that and trying to do the work that we can't possibly do."* (IC52)

> *"they were aware of our situation but just nothing was happening, nothing was getting done ... it's patients being put at risk and staff being put at risk"* (IC60)

> *"I put [in the Datix] staff are worried about patient care, staff don't want to come, they feel that they don't want to come in to work, they're worried, you know, people are worried they're making, that they're going to make a mistake, which to me I think is quite significant that people are feeling like that. And it's not just people that have been here for a while, you know, we're talking about newly qualified nurses who come here and they've actually said to me I don't want to be here, I dread, I can't sleep at night, I can't, I don't want to come in, which I think is awful, you know."* (IC44)

The other predominant emotion expressed by these participants was anger, and for nearly everyone this was compounded with a sense of injustice or unfairness;

> *"Sometimes I hadn't put them in before, but I just got to the point where we were so short and I was so fed up of it being always short and people just having to cope, that then I thought "No!" and I sort of made a bit of a stand that I was going to do a Datix every time we were short ... and we were being put upon over and above what I thought we were safe to do".* (IC60)

> *"she [duty manager] told me she couldn't put the shift out to agency just because of bureaucracy. ... Yet it was out of hours and I believe she had the authority to do that. ... So I thought that was a bit off"* (IC45)

> *"I rang the duty manager and I was basically told to deal with it the best I could and that they couldn't give us any help,... and nobody seemed to be bothered, to be honest, they just sort of left me to it"* (IC58)

For most comments of this sort the anger was directed at the organisation in general and those managers who appeared to be supporting a perceived financially prompted policy of keeping recruitment at a barely adequate or inadequate level. One participant, though, was clearly angry with a specific member of staff on the ward who was perceived not to be pulling their weight.

> *"she wouldn't take responsibility. So that meant that both myself and the other colleague, ... we just found ourselves under, we were under a lot of pressure anyway and we just found ourselves, you know, just getting even more under pressure. ... I don't know what she was doing but, or not doing,*

> *you know, but she managed to upset people and I just ... didn't want to stand for it"* (IC44)

Interestingly, there was also one participant who implied that for them filing an incident report was used, not so much as a way to flag up a risk to patient safety, but as an outlet for their feelings. This might imply that the very action of filing a report could reduce the level of emotion experienced.

> *"it's only when I'm really, really narked-off that I threaten to put a Datix in"* (IC50)

Finally, for one participant, the emotion of the moment triggered further, continuing, action to try to find other ways of influencing events.

> *"I then started speaking, on top of the Datix form I then started speaking to several other people. So I spoke to the surgical services manager, I spoke to the surgical Matron, various other people and just basically decided to do a bit of foot-stomping and a bit of "I'm sorry but this isn't flippin' good enough!". And it ended up, I ended up with the Assistant Director of Nursing down here and all sorts. ... It's [now] been put in the Trust risk register, highlighted as a risk"* (IC42)

7.5 Summary and concluding remarks

The two previous chapters considered the multiple threats perceived by hospital staff in their working environment, their assessment of the risks they posed, and the decisions they made about which specific threat to prioritise and how to respond. This chapter is more speculative in character, focusing on data illustrating some of the conditions which may provoke change in the perceptions of the risk posed by a specific threat.

First it was noted that a new, greater threat, or one which required a more urgent response, could alter perceptions of risk and change the salience of the threat originally assessed as most important. Individuals could also differ in their views about what did or did not constitute a threat, or there could be disagreement about what was, or was not the focal or most salient risk. There was also evidence that, under changed circumstances, the same threat could be assessed differently, even by the same individual/s.

The chapter went on to consider instances of changed behaviour in relation to a specific threat, despite perceptions of the risk posed by that threat remaining the same. It noted in particular that although staff were evidently aware of the risk to patient safety of having too few staff to carry out all required tasks, most apparently felt unable to influence this situation. The data suggested that feeling unable to behave differently in these circumstances threatened their self image as a 'good nurse', a threat which was alleviated by perceiving themselves as 'doing their best'.

Last and most interestingly there was compelling data from participants in Phase 2 to show that, on occasion, individuals who had previously tolerated working with too few staff could be driven by emotion to change their behaviour and find other ways of responding to the threat to patient safety.

Chapter 8: Discussion and concluding remarks

Research into risk perception has been criticised for failing to study actual behaviour, only people's reported intentions, and for omitting to examine the reasons underpinning behaviour (af Wählberg, 2001; Slovic, 2000 p xxiii). The fundamental purpose of this thesis is to seek to address these issues by increasing understanding of the influence of risk perception on observed and reported action.

The thesis has two complementary aims: 1) to demonstrate and detail links between behaviour and perceptions of risk from identified threats in the 'real world' setting of an NHS hospital; and 2) to examine the impact of such perceptions on patient safety, improvement of which is a key objective for the NHS (NHS England, 2017). Two propositions were formulated. The first stated that "*a) individuals identify multiple, qualitatively different threats in their environments and b) prioritise the most salient for a behavioural response*", and the second that "*a) different threats may be more or less salient at any particular time, but that b) salience may vary if circumstances change, altering individuals' responses*".

The fieldwork was carried out in the specific 'hazard domain' (Slovic, 2000) of an NHS acute hospital. Analysis of healthcare staff's narratives and the observational data used an approach developed in this research, conceptualising behaviour as a response to risk, rather than as being prospectively motivated[131], and the results supported the original propositions. First, staff could and did identify many different types of threat in their working environment and appeared to consciously and/or non-consciously select and prioritise their responses according to the perceived salience of the threats. The data also supported the second proposition, that under changed circumstances, such as perception of a new, more urgent threat or revision of their original assessment of the threat, salience might vary, altering individuals' responses.

Three findings stood out as being of particular interest. First, while it was expected that participants would refer to many different perceived risks and their effect on their

[131] For detail see Chapter 3 Methods and discussion later in this chapter

behaviour, it had not been anticipated that one single threat, shortage of staff, would dominate the data collected and have a global impact on most other perceptions of risk reported. The second major finding was that it was not always necessary for people's cognitive perceptions of risk in relation to a threat to change, in order for their behavioural response to that threat to be modified. Finally, it was found that emotion made a very considerable contribution to both the assessment and selection of the most salient threat and on behaviour in response to that threat. In particular, the finding[132] that under changed circumstances emotion alone could override a previous decision not to respond to the cognitively assessed risk represented by a specific threat, had not been previously predicted.

The following discussion critically examines the research findings to determine their potential significance and importance, the extent to which they are supported by the literature, and the degree to which they may be seen as valid and reliable. It suggests some explanations for the observed and reported behaviour of participants in the light of what is already known about the psycho-social determinants of decision-making under risk, and argues that the findings increase understanding of staff behaviour in a hospital setting and its possible impact on patient safety. It also suggests, more broadly, that the findings make a contribution to knowledge about responses to perceived risk, which may be generalizable to other organisational settings, both inside and outside the health service. In particular, it introduces the idea that threats may usefully be categorised into those which are perceived by individuals as acute or episodic and as potentially reducible through their own response, and those perceived as persistent, requiring toleration rather than moderation by individual action. Finally a theoretical model is proposed, based on the findings, which conceptualises behaviour as a response to perceived risk from multiple different threats and illustrates some of the factors which may link risk perception and decision-making to action.

[132] Evident from the Phase 2 data on adverse event reporting

8.1 Multiple threats, perception of risks and the impact on patient safety

8.1.1 The key influence of one major persistent threat

As predicted from the study's original propositions, hospital healthcare staff perceived multiple different threats, both to themselves and to others (patients, colleagues, and City Trust itself) in their working environment, and the data collected presented a compelling picture of their experience of their working environment and issues of relevance to them within it.

However, the data also revealed that perceived threats to patients' care and safety were pre-eminent, more than twice the total of all other threats recorded (see Table 4.7). Some were specific, such as medication errors, falls, or omissions of required procedures, but such specific threats were subsumed by what all participants saw as the greatest overall threat to patients, the effects of staff shortages. The narratives of participants suggested that they attributed most other deficiencies in the care provided to this one overarching threat, which they saw as so persistent as to be almost always present, *"We're always either on an amber – if we're green which is a normal rating, rag rating, they take our staff from us and take, and redeploy them elsewhere to another ward*".

The prominence of this finding was somewhat unexpected. It was anticipated that asking people about perceived threats in their working environment would lead them to identify many relating to the tasks they were employed to carry out. However, it was not predicted that one specific threat would be seen as overwhelmingly important, nor that this would be seen by participants as having such a knock on effect on the perception and assessment of other different threats. The ubiquity of this threat It was recognition of the perceived significance of this particular threat to patient safety in the Phase 1 data, along with the discovery that staff shortages were the most frequently recorded adverse event, that determined the selection of database entries identifying this issue as the dependent variable in Phase 2 of the research.

It is particularly interesting in terms of risk perception that the threat represented by staff shortages, while it was perceived as constituting *a*, if not *the*, major threat to patients care and safety, was also perceived to be impacting different 'others', i.e. colleagues, City Trust and even, by reputation, the NHS itself. Most particularly, however, the findings suggested that this threat was posing a considerable risk to the participants themselves, who reported adverse effects on many aspects of their personal lives.

Participants were concerned about both their own physical and mental health - "*I come home every day with a headache*", "*I have a feeling of dread coming in to work"* - and harmful effects on their personal relationships from working late and feeling stressed[133]. They also worried about threats to their way of life because pressure of work increased the risk of making mistakes and being sued or even losing their professional registration (not as unlikely as it may sound as Croke (2003) notes that an increasing number of nurses are being named in malpractice lawsuits), while some felt they might be forced to give up their employment because of the effects of stress[134]. In addition, many participants said that shortages of staff that threatened patient care fuelled public and media perceptions that were "*slanted against the NHS*", further threatening their desired public image[135] as caring professionals in a respected occupation, "*you say you work for the NHS ... you're responsible for everything*".

Many of the different factors which may contribute to workplace stress (Colligan and Higgins, 2005, Mark and Smith, 2008) are evident in these data. The vivid descriptions of the pressured working conditions consequent on staff shortages, with insufficient time to complete necessary tasks for patients, never mind administrative duties, or to take adequate time off for rest and refreshment, epitomize what Macklem (2005) termed a "*toxic work environment*"; while the reported feelings of anxiety and fear

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[133] There is a large literature attesting to the possibility of work issues adversely affecting family life (see for instance Greenhaus and Beutell, 1985; Frone et al, 1992)

[134] Chang et al (2005) in a review of the literature on factors contributing to stress in nurses identified work overload as one of the main reasons for nurses leaving the workforce

[135] The way they are seen by others is frequently of great importance to people (Schlenker, 1980) and nurses may in any case feel unfairly rated as having low status (Devereux and Weiner, 1950; Manzano-García and Ayala, 2017; Glerean et al, 2017)

engendered by a situation perceived as threatening (Colligan and Higgins, ibid) are also characteristic.

Although this research does not focus on volume of workload per se, the ubiquity of the finding that participants perceived their workload to be so great as to have a negative effect on the care they were able to give their patients and on the levels of stress they experienced at work suggests that this is an important issue to consider when drawing inferences from the data. There is a wealth of evidence that increased nursing workload leads to lower quality of patient care and safety, as well as higher rates of anxiety, stress, and 'burnout'[136] amongst healthcare staff (Ross et al, 2019). While workplace stress may be experienced by employees in any industry, a number of studies have found nurses to be more likely than the general population to perceive themselves as stressed at work (Smith et al, 2000; McVicar, 2003; Mark and Smith, 2012). Evidence from this study suggests that a possible explanation may lie in the general perception that shortages were adversely affecting delivery of the care their patients needed. This was hugely emotionally stressful for the majority of participants. Comments such as "*you feel like you're a bit of a failure*" and "*you can't give the care you want to give*" suggested that the effect of shortages was to damage the view participants had of themselves as a 'good nurse' whose personal satisfaction came from looking after patients. As depicted by this quotation;

> *"Nursing is based on solid ethical foundations ... Inherent in nursing practice is the obligation to protect patients from harm .... Thus, nursing activities are often guided by these values and the commitment to providing safe, compassionate, comprehensive, individualized, humanistic, and quality care to patients "* (Vryonides et al, 2015 p 882)

the traditional view of nursing sees it as altruistically driven (Kramer, 1967; Rognstad, 2004, Haigh 2010), and while this rather unidimensional view has been challenged by many who point to the importance of also recognising nurses' knowledge and professionalism (see for instance Hoeve et al, 2014), the preoccupation in participants' narratives with the perceived risk to the wellbeing of their patients of the effects of

[136] *"Burnout is a prolonged response to chronic emotional and interpersonal stressors on the job, and is defined by the three dimensions of exhaustion, cynicism, and inefficacy."* (Maslach et al 2001 p 397)

having insufficient staff, strongly suggests that participants were committed to these ideas and principles. Being unable, as they saw it, to properly fulfil their role as a nurse, threatened their own self concept and was thus hugely stressful[137]. Indeed, the results suggest some participants may have been close to experiencing burnout (Freudenberger, 1974; Maslach, 1976; Maslach and Jackson, 1981), which has been found to be strongly associated with low staff/patient ratios (Aitken et al, 2002).

The evidence thus not only supports the original assertion that hospital staff can and do identify multiple different threats in their working environment, but also, importantly, suggests that threats perceived by an individual may have a direct effect on that individual, even if primarily identified as affecting others.

8.1.2 Prioritising the most salient threat

This section is concerned with examining the process by which the healthcare staff who participated in this study, having identified multiple threats in their working environment, assessed the risks they were perceived to pose, made selection of the most salient and decided how to act in response. In particular it seeks to explore the extent to which participants' assessment and selection of the most salient perceived threat - insufficient staff to carry out all the tasks required for patients - could be seen as being directed towards amelioration of risk to others (especially patients), to the individual themselves, or perhaps to both.

Participants' perceived primary task as NHS healthcare staff was the provision of safe and good quality care for patients. This is not only the key objective of the NHS;

> *"Patients must come first in everything the NHS does. ... The NHS aspires to the highest standards of excellence and professionalism in the provision of high quality care that is safe, effective and focused on patient experience. Quality should not be compromised"* (DoH, 2015 p 13)

[137] Participants may have been experiencing 'moral distress' (Jameton, 1993; Hanna, 2004; Burston and Tuckett, 2013) where the 'right' course of action is known but the individual feels prevented from taking it.

but also the first element in the nursing code of professional practice;

> *"Prioritise people: You put the interests of people using or needing nursing or midwifery services first. You make their care and safety your main concern and make sure that their dignity is preserved and their needs are recognised, assessed and responded to."* (Nursing and Midwifery Council, 2015 p 5)

Faced with what they perceived to be their inability to wholly ameliorate the risk to patients from staff shortages, the main cognitive strategy reported by participants for dealing with the problem was to rank their tasks according to their importance to patient care

Reducing risk by ranking tasks

Prioritisation of patients' needs is an accepted part of clinical practice[138], and participants in this study were clearly familiar with the concept of deliberate prioritisation in relation to their workload. Junior nurses and support staff were more likely to refer to making choices between the different needs of a particular patient or patients, while senior staff often had to choose between giving direct hands-on care and essentially administrative tasks, such as organising staff rotas to give the best possible cover. However, for many participants 'prioritisation' also referred, pejoratively, to a process of explicit rationing. Rationing has long been a topic for general debate concerning resource allocation in healthcare[139]. In this study however, it appeared from the data that rationing specifically referred to patient care and making decisions about the risks entailed in omitting some tasks and procedures in order to be able to carry out others (for recent reviews of rationing in nursing see Papastavrou et al*,* 2014a; Scott et al*,* 2018).

Rationing as a type of prioritisation necessarily involves suspending the usual routines for providing optimal care to patients, and in situations where it seems impossible to follow normal procedural rules, other ways of dealing with the dilemma will be

[138] See Lake (2001) for an overview

[139] See for instance Klein, 1991; Klein and Redmayne, 1992; Klein et al, 1996, Light, 1997; Mechanic, 1995; New, 1996; Smith 1996; and for a recent review of the field, Emanuel et al , 2018)

found[140]. Participants reported a number of strategies adopted to avoid rationing hands-on care or ameliorate its effects. These included not completing paperwork deemed non-essential, as well as altruistic actions such as doing work scheduled for other staff to free up their time, working longer hours than participants were paid for, and omitting on-duty breaks. To act in an altruistic way, "*to further another person's good at some cost to oneself*" (Seglow, 2004 p 146), is not *per se* a requirement of the employment of healthcare staff[141], but it is possible that by acting unselfishly individuals who found their own value system and sense of self worth threatened by the prospect of having to ration patient care were able to ameliorate this risk.

More obviously problematic strategies, summed up by the remark that staff could be "*too busy to prioritise good practice*", included failing to carry out strict control of infection procedures, inadequate completion of routine tasks such as monitoring fluid intake, and moving patients without proper equipment. Reason (1995) termed such actions 'necessary violations', lapses in taking safety precautions seen as essential in terms of getting more tasks completed.

Despite tactics aimed at cutting corners in order to avoid directly compromising patient centred activity, participants' narratives made clear that they frequently felt constrained to omit certain aspects of hands-on care. Papastavrou et al (2014a) found that in such situations nursing staff tended to prioritise biomedical and clinical tasks, giving less attention to basic needs such as feeding and mobilisation. In this study, however, reported omissions covered the full spectrum from relatively trivial basic procedures, such as washes, to compromises involving distinctly non-trivial clinical tasks such as late administration of drugs or tardy pain relief.

The strategies reported by participants for avoiding or ameliorating the effects of rationing may have appeared to reduce the risk of patients receiving inadequate care. However, even avoiding administrative tasks or working longer hours could have

[140] For a review see Hale and Borys, 2013 a&b

[141] although public concepts of the healthcare professions still retain the loosely defined idea that altruism is a key component of what can be expected from its members (Slettmyr and Schandl, 2017; Sellman, 2011)

future consequences for patients (e.g. unrecorded statistical information, increased risk of staff burnout), while violations of safety rules clearly have potential for catastrophic harm[142]. However, the extent to which decisions to compromise good practice were deliberately made was difficult to ascertain. Alper and Karsh (2009) in a systematic review of safety violations in industry offer an extensive list of factors contributing to their occurrence (extended by Hale and Borys (2013a) following further literature review). While many of the factors identified could lead to calculated violations, many, such as individual attitudes, status among peers, group norms etc., could also foster the development of habitual behaviours of which people may be less aware (Eiser and van der Pligt, 1988 p 41).

Essentially staff were making decisions about which rules had to be broken in order that what they perceived as the most important rule, that of ensuring patients were not harmed, was observed. Risk-risk tradeoffs (Lave, 1981) are seen as ubiquitous in society (Stern and Fineberg, 1996; Löfstedt and Schlag, 2017) and are well documented in many different literatures, particularly those relating to aspects of health or the environment (e g Graham and Weiner, 1995) and statutory regulation (e.g. Löfstedt and Schlag, ibid). However, the data from this study do not suggest any specific evaluation of the degree of risk represented by the rule violation. Instead the tradeoff process seemed more akin to that described by March and Shapira (1987) as a search for alternatives to meet targets, rather than being focused on assessment or acceptance of risks, ignoring consequences which appeared unlikely and distant in favour of tangible and immediate benefits (Lawton, 1998).

Reducing risks to the self as well as to others

So far, the prioritisation process as described by the healthcare staff who participated in this study can be seen as largely cognitive and deliberate and their narratives

[142] Indeed, as noted in Chapter 3, the original catalyst for this research was a patient being seriously harmed by just such a failure to follow safety rules in relation to a routine task

suggested they went to considerable lengths to try to prioritise the care and safety of their patients.

However, the actions reported by participants were not necessarily undertaken just because they had a professional responsibility to reduce risks to patients. Prosocial (as distinct from 'antisocial', Batson and Powell, 2003) actions also often confer benefits on the perpetrator. Although such benefits were not specifically mentioned by participants in this study, positive 'side effects' (Carlson and Zaki, 2018) such as material advantages (after all healthcare staff receive remuneration for what they do), social approval, praise from others and "good feelings" have all been suggested in the literature (for a review see Batson and Powell, ibid). Indeed nursing, rather than being seen solely in terms of altruism, may be seen as satisfying a need to maintain an emotionally satisfying social group (Haigh, 2010) or conferring a sense of power in terms of making a noticeable impact for good in the world (Giuffra, 1987).

While it was not clear to what extent the perceived risk of losing any of the above benefits contributed to participants' actions, one thing that did appear from their narratives to be important to them was their view of themselves in their role as healthcare staff i.e. their self concept as illustrated by comments such as "*nursing gives me satisfaction because I care for the patient ... [although] ... probably I could have made more money in another field*", and "*[when] ... you make a difference to someone's life ... you realise why you became a nurse ... [that's] what gives you that buzz and really makes you feel good*". Thus, although they may not have been consciously aware of the extent their personal feelings about their work and their patients might contribute to their thinking about prioritisation, it seems likely that concerns about the effects on their patients of having to omit aspects of their care also reflected their own feelings about possible damage to their view of themselves as a caring person.

With such a value orientation, and provided there is no conflict between what is good for the individual and good for others, there should be no difficulty in selecting a threat to patients as most salient. However, conflicting demands not only encourage violations (Hale and Borys, 2013a) such as varying or omitting proper procedures (see

the previous section) but also affect assessment of risk and choice of response. There was evidence suggesting that although patient care appeared to be of key importance to their value system, the behaviour of participants did not always appear congruent with such ideals.

To begin with, an orientation towards altruism implies doing good to others in general, not just a particular group, i.e. patients. Hence there were some (though not many) instances from the data of participants putting colleagues interests ahead of those of patients[143]. In addition, an altruistic value system which is sensitive to risks affecting others may also, as Graham (2004) points out, harbour concerns for and identify with the interests of more nebulous entities, such as the organisation(s) to which they belong. Some participants' comments suggested that organisational loyalties, in this case to City Hospital, or even to the NHS as a whole, were important in determining salience. For instance, awareness of financial shortages and the need to meet targets could conflict with the needs of patients. Bean (2011 p 320) refers to this dilemma as "*the murky intersection between clinical and organisational ethics*".

It is also necessary to consider that individuals may sometimes find their own interests, goals and desires in conflict with those of others (Graham, 2004 p 51). Determining salience is much more complex where the threat to others (in this case patients) also poses risks to oneself. Examples of possible risks to the self from the threat to patient care and safety created by staff shortages were detailed in the previous section. Theoretically, this situation might be less threatening to some individuals' value systems than others and the accounts of a number of participants indicated that they were aware of differences in colleagues' views of nursing. Typical comments were:

> *"it's the difference between a vocation and a job, which if you speak to a lot of nurses now it's a job unfortunately. ... Well I don't think that's true of all people. ... I'm not saying even the majority, but yes, I think it's definitely true of some, and you can tell that when they're coming through as students."*(IC42)

[143] Of course such behaviours could also reflect, as Haigh (2010) suggests, a need to avoid risking the cohesion of a valued social group

> *"[she said] "I'm only doing this to help me mortgage so I've only got a couple of years now and that will be finished ... and that will be my lot"* (IC27)

The implication was that those who seemed not to hold the values and attitudes attributed to nursing as a vocation were less likely to put patients first[144]. and that someone with a more instrumental approach to nursing might be less concerned about deficiencies in what they were able to provide for patients provided that they were paid to do it. A number of participants attributed such "*it's a job*" attitudes to agency nurses in particular, and one focus group member summed up what appeared to be the general perception of such staff:

> *"the problem with bank and agency, there is no sense of belonging, there's no sense of ownership, so they don't pitch up, they don't have to be there, ... there is no level of accountability"* (FG)

These views reflect those expressed by Sellman (2011), who asserts that those who see nursing as merely a means to external ends, such as gaining money or status, cannot fully enter into the value system required of nursing practice. However professional values are also seen as standards that can be taught, either by education or by watching others (Kaya et al*,* 2016). Indeed, Slettmyr and Schandl (2017) suggest that in a secular society where healthcare is driven by economic incentives and nursing is seen as a technical profession, traditional nursing values may be seen as old fashioned.

> *"nurses have to balance the paradigm of nursing as a vocation, where altruism has a natural place, with the perception that the profession is a salary work like any other"* (Slettmyr and Schandl, 2017 p 9)

The preceding caveats suggest that, whatever their core sets of values, people's decision-making about priorities may also be influenced in complex ways by perception of other threats in their environment. Furthermore, whatever an individual's core attitudes and values, they do not always act in the same way (Katz, 1974). Someone who is generally unselfish is not always so, any more than someone

[144] The prevalence of such views may well be partly due to the bias inherent in the sample of participants. They had all volunteered to be interviewed and in general their narratives not only suggested that they subscribed to the 'traditional' values of the profession but also that they had strong feelings about aspects of their work that they wished to communicate.

who mostly puts themselves first is incapable of an altruistic action, "*there is no sharp distinction between self-interest and selflessness*" (Churchill and Street, 2004 p 103).

The value systems of participants in this study, as evidenced by their narrative accounts, did not consistently represent either of these extremes. Furthermore, it is unnecessary for the argument in this thesis to suppose that they did. Arguably, indeed, provided they fulfil their contractual responsibilities at work, someone seeing nursing simply as relieving the threat of unemployment by providing a steady job with good pension prospects may be just as able to address the needs of patients as those who have a more value laden approach to nursing. Hence, the question this thesis seeks to explore does not relate to the core characteristics of any individual but to their process of risk perception and choice. It relates simply to how this particular sample of healthcare staff determined the most salient risk and decided on a response, faced with what they perceived as a major threat, a staff shortage they had no way of alleviating, posing risks not only to their patients but to their own interests and/or those of other colleagues or the organisation.

8.1.3. Perceptions of risk and tolerance of stress

In fact, the narratives of all the participants in this study suggested that their own self concepts approximated closely to the traditional values attributed to the profession. Thinking of themselves as caring people was important to them and they found having too few staff to carry out all they needed to do for their patients very stressful. Succumbing to burnout might have reduced the threat to their own well being by removing them temporarily or permanently from the situation, (anecdotal evidence in this study pointed to burnout as a reason for high levels of staff absence from sickness and a number of participants spoke as if they were considering leaving altogether); but at the time of the study they remained in post.

If the argument in this thesis is valid, the behaviour of participants in remaining and continuing to work with patients suggests this represented the least risky option for them. The previous section suggested a number of reasons why this might be so, involving the assessment (whether conscious or non-conscious) of many different

threats and their relative importance, with the behavioural outcome a response to this composite evaluation. Some explanations relate to an individual's self concept as a 'good nurse'. Participants may have felt that leaving would increase risk to others; fewer people to deliver care to patients, more work for colleagues and extra financial burden in employing agency staff for City Trust. More personally focused risks of leaving could include loss of earnings, loss of one's professional standing in the community, perhaps loss of the social aspects of working with like-minded colleagues.

Responding to the risks involved in resigning by remaining in post is unlikely to do anything to reduce the emotional stress involved in having to compromise standards by continuing to work with too few staff. However, although all participants reported the problems associated with staff shortages, not all appeared to experience the same degree of stress. While the narratives of some suggested they were close to breaking point, this was not true of the majority, suggesting that some other stress reduction process was involved. The next section considers possible mechanisms to account for these individuals being able to cope with a mismatch between their personal and professional value systems and their actual working practices.

Possible psychological mechanisms for increased tolerance of stress

First, it is possible that individuals, particularly junior staff, could have been influenced by feeling a need to defer to people in authority, an entrenched norm in organisations, frequently leading to subordinates carrying out orders regardless of deleterious consequences (for a review see Cialdini and Goldstein, 2004). Milgram, in a classic series of experiments, concluded that:

> *"A substantial proportion of people do what they are told to do, irrespective of the content of the act and without limitations of conscience as long as they perceive that the command comes from a legitimate authority"*
> (Milgram, 1965 p 75)

Research since then indicates that the most effective authority is made up of a combination of expertise and legitimacy (Milgram, 1983; Blass, 1999). Those in authority over healthcare staff on wards very frequently are, or have been, nurses themselves. Hence they may be seen as having both legitimacy and expertise –

"*because they're dictated to me by my manager then I have to do them* ". A more subtle and insidious influence may be an urge to social conformity (Asch, 1956), a mix between direct social pressure to think and do what others in an individual's group are doing or risk being ostracized, and a more nebulous recognition of the risk of being thought of as challenging the general cultural values in the group to which they have chosen to belong (Douglas and Wildavsky, 1982; Douglas, 1983; Wildavsky, 1987; Bond and Smith, 1996). Hence, if healthcare colleagues' language and behaviour assent to changed ways of working, individuals may feel the need to at least appear to conform. While there is no direct evidence of this in participants' narratives, many of those writing about a perceived reduction in standards of care in nursing (see for instance Levett-Jones and Lathlean, 2009; Papastavrou et al, 2014b; Price et al, 2015; Vryonides et al, 2015) see this as a key issue.

Spanning the two theoretical approaches of deference and social conformity, Ajzen's theory of planned behaviour (Ajzen, 1985, 1991) suggests that both social pressures and locus of control (Rotter, 1966), the extent to which people feel in command of their actions, influence people's conduct. Locus of control, often seen as a wholly internal construct, has another aspect, sometimes overlooked, which sees it as involving an assessment of the external environment (Galvin et al, 2018). It is this latter view which may help here in explaining healthcare workers' behaviour as a perceived locus of control in which other people or aspects of the situation are seen as controlling behavioural choices, possibly inducing feelings of helplessness (Maier and Seligman, 2016) [145]. Several instances of this type of scenario are detailed in Chapter 7 – a nurse feeling unable to challenge a doctor's disregard of a patient's dignity, a doctor ordered to desist from resuscitation by a senior nurse, a nurse told not to bother with a procedure s/he saw as important – all these could be seen as exemplifying one, or indeed several, of these theoretical explanations of conforming behaviour.

[145] To be discussed later

Importantly, however, while these theories offer psychological explanations of observed behaviour, none rely on demonstrating an actual revision of internal attitudes and values as well. While it is entirely possible in the short term, for people to pay lip service to, or even behave in ways that do not actually reflect their true thoughts and feelings, Festinger's theory of cognitive dissonance (Festinger, 1957) [146], "*one of the most influential theories in social psychology, general psychology, and cross-discipline sciences more generally*" (Vaidis, 2014)[147], suggests that a prolonged mismatch between opinions and behaviour is likely to be psychologically uncomfortable.

Dissonance theory states that if people perceive themselves unable to change behaviour which does not match their personal beliefs, values and attitudes, then in order to reduce that dissonance their present attitudes will alter retrospectively to align better with their previous behaviour (Eiser and van der Pligt, 1988 p33). Such an internal and (probably) non-conscious revision of individuals' attitudes and values would activate protective defence mechanisms (Joffe, 1999), reducing stress by diminishing their perceptions of the risks involved in having to compromise standards of care, and ameliorating to some extent the threat posed to their own self concept. Indeed a number of papers in the nursing press have cited cognitive dissonance between behaviour and values to explain how nurses can develop tolerance to a situation, like that reported as obtaining at Mid-Staffordshire (Francis, 2010, 2013), in which the care delivered is suboptimal (Timmins and de Vries, 2014; Paley, 2015; Price et al, 2015; de Vries and Timmins, 2016).

Although this explanation may seem tempting, from this study there is only limited evidence that actual revision of values might explain some observed or reported behaviours. A nurse may omit giving a patient a thorough wash because they are told to do so (compliance), or because they are working with colleagues who think that is not an important aspect of care and do not wish to seem to disagree with a consensus

[146] For reviews see Aronson, 1997; Harmon-Jones & Mills, 1999; Proulx et al, 2012; McGrath, 2017
[147] Although dissonance theory has come to be seen by some, theoretically at least, as only part of a general inconsistency compensation phenomenon (Proulx et al, 2012; Harmon-Jones et al, 2015)

view (conformity), in either instance, though behaving in this way may be stressful, they do not have to change their own view of what they are doing. However, only two participants expressed the opinion that because people didn't necessarily wash themselves all over every day when at home, a daily bed bath in hospital was not required, which does suggest a truly altered cognitive perception that the revised practices did not represent a threat to their professional nursing values and delivered acceptable care.

In addition, even in the two cases cited, a permanently altered perception of the risk posed to patients from revised nursing practices does not wholly account for the data. Although these participants appeared to have revised their views in relation to some specific practices, this did not apply to all their perceptions of risk in relation to patient care. Were that the case, their accounts would have been full of similar justifications, whereas in fact their accounts detailed many shortfalls in care which they deplored. There must be other ways in which they and their colleagues were able to tolerate the stress of dissonance.

Explanations for the development of tolerance

One explanation from the risk literature is suggested by the Social Amplification of Risk Framework (Kasperson et al, 1988; Pidgeon et al, 2000). While the body of work based on this idea is, as its title suggests, mainly focused on amplification, the opposite process it describes, the social and individual factors that lead to attenuation of perceptions of risk, is arguably just as important. It seems possible that at least part of the explanation for participants remaining in post despite their belief that patient care was being compromised was that, both as individuals and collectively, their perception of the degree of risk involved was blunted and diminished by familiarity. A similar explanation from a psychological perspective was offered by Wilson and Gilbert (2008) who proposed that affective responses weaken after one or more exposures to emotional events. Evidence from this study in support of this explanation ranges from the specific, such as observed slow responses to frequently ringing bells, to more general comments from participants that, over time, staff who might initially have felt overwhelmed became used to the situation.

> *"if you get some newly qualified staff, bless them, it's a shock to their system if they work here, my god!"* (IC46)

Such views were further supported by the finding that narratives which seemed to indicate very high degrees of personal stress tended to come from the more junior staff interviewed, suggesting perhaps that with more experience came a degree of tolerance. Indeed, one participant suggested precisely that:

> *"I only qualified fourteen months ago and maybe that's why I'm so worried. ... I think people who have been qualified for longer, they learn not to worry that much."* (IC43)

So yet another explanation for the development of tolerance to a situation in which others are put at risk because of one's own behaviour may lie in the effects of familiarisation over time attenuating perceptions of risk and, also perhaps, in an increase of expertise, allowing more nuanced assessment of degree of risk (Besnard and Greathead, 2003; Hale and Borys, 2013a).

Another theoretical approach which suggests a process of familiarisation with a threat is offered by social representations theory (Moscovici, 1961, 1976, 1988). Here a threat which is perceived by many people in a social group becomes gradually part of a person's natural thinking about the issue, reducing the "*strange and unfamiliar*" to the ordinary and familiar (Breakwell 2014 p 284). Thus, rather than seeing individual psychological processes as the exclusive source of giving meaning and offering ways of adapting to a stressful situation, the social representational approach sees human thought as rooted in the social milieu in which it occurs (Joffe, 2003). Hence, as the following quote suggests, the threat to patient care from shortage of staff becomes less stressful because others are experiencing it as normal.

> *"[this is] how the hospital is run and how most hospitals are run, that there isn't a spare member of staff just waiting to be called on."* (IC48)

Any, or indeed all, of the foregoing explanations may be relevant to some extent in explaining participants' toleration of the dissonance between their value systems and their behaviour.

As noted earlier, if individuals in an ongoing situation which they identify as dissonant[148] see themselves as unable to affect what is happening, they may experience a state of mind, originally termed 'learned helplessness' (Seligman, 1972), characterised by feeling unable to take any action to mitigate the situation. Instead they may just 'go through the motions' in order to maintain the status quo and avoid conflict (Moreland et al, 2015), though feelings of anxiety may also be present (Maier and Seligman, 2016). However, in its original conceptualisation, this theory does not really seem adequate with regard to participants in this study, who, although they mostly perceived themselves as unable to influence staff shortages, did try, through a process of prioritisation, and often by putting patient care ahead of their own needs, to mitigate the threat.

More recently, though, in a reappraisal of the psychological and physiological evidence, Maier and Seligman (2016) suggest that the feeling of helplessness is only the default, unlearned response to prolonged aversive events, and that acknowledgement and re-appraisal of the problem can induce ideas of controllability and be helpful in reducing destructive negative thoughts and emotions. This explanation chimes well with Identity Process Theory (Breakwell 1986, 1993, 2014; Jaspal and Breakwell 2014), which predicts that if an individual's self concept is threatened action will be taken to try to protect or regain it. The same point is made in a review of the concept of identity used in theories of identity and social identity (Stets and Burke, 2000). There they suggest that people will try to reduce incompatibilities between their view of themselves and how they are behaving in a particular situation:

> *"people act to keep perceptions of themselves in the situation consistent with their identity standard. They take actions to modify the situation so that perceptions of the self are consistent with the standard in spite of situational disturbances caused by others, prior actions of the self, or other situational influences"* (Stets and Burke, 2000 p 233)

[148] In this case a threat (insufficient staff) perceived to pose a risk to patient safety and damage to their own self image

Thus, for individuals finding themselves in a situation which they feel unable to influence, an effective coping mechanism may involve revision of their self concept through an improved sense of self efficacy.

This process does seem to offer a convincing explanation for the way in which participants in this study were able to tolerate the stress of having to ration patient care. Rather than seeing themselves as individuals who were prepared to behave in a way that both explicitly and implicitly endorsed lower standards, participants appeared to be coping by, first, acknowledging their perceived inability to do anything to change the situation[149], and then (consciously or non-consciously) re-assessing their contribution more positively as the best that they could achieve in the circumstances - "*I've started to think "well I've done my best. That's all I can do*".". In other words, when their self-concept as a 'good' nurse, was threatened they were able, instead of seeing themselves as being constrained to behave in the 'wrong' way, to assert a belief in their self efficacy as living up to the 'right' values by doing as well as could be expected in the circumstances.

8.1.4 New evaluations of old threats - the transformative role of emotion

The observational and interview data from this study mostly present a picture of hospital staff who were stressed by a perceived persistent threat to patient care and safety from staff shortages which they saw themselves as unable to ameliorate. It has been argued in the previous section that their tolerance of this stressful situation in continuing to work under conditions which challenged their self concept may be attributed to their ability to reduce the stress involved by viewing their various attempts to mitigate the threat in a more positive light, as 'doing their best'.

However, the 27 participants in Phase 2 had all decided on at least that one occasion to take specific action which might have some influence (albeit not immediately) in reducing the perceived risk to patients by reporting a threat to patient safety. The key

[149] Though, as will be discussed later, there were options open to them which they did not always exploit.

question here is what triggered this new response to an ongoing situation in which the risks to others and to the self had up till then been tolerated.

Filing an adverse event report citing insufficient staff to care safely for patients is a behavioural option which is always open to healthcare staff. Reporting threats to patient safety is specifically encouraged at national and local level (NHS Improvement, August 2017), and within the City Trust database there was a specific category under which such reports could be filed[150]. Nevertheless, all but one of the participants interviewed on the basis of having reported a staff shortage admitted that they did not always do so, even if the situation merited it. Reasons given for non-reporting were similar to many of those cited in a number of studies of adverse event reporting (see Vincent et al, 1999; Lawton and Parker, 2000; Evans et al, 2006). They included lack of time and a belief, in some cases supported by experience, that it would have no effect because no-one appeared to take any notice.

The decision to report shortage of staff as an adverse event was not then, for these participants, related to a changed view of the situation and the risk posed to patient safety, nor to a belief that taking action would necessarily reduce that risk. This was an unexpected finding. This cohort of staff was, of course, a minority group, and might have shown differences in their tolerance of and response to perceived risk from the majority who had never recorded "insufficient staff" as an adverse event[151]. However, it had been thought that individuals who had filed an adverse event report, regardless of their general orientation towards risk, would have been reporting a changed perception of risk to patient safety on that occasion, enabling a distinct link to be demonstrated between a revised perception of risk, the process of choice and decision-making, and behaviour. Instead, participants' narratives made clear that their cognitive assessment of the risk to patients on the day they made the report was the same as that they had made on previous occasions when they had not reported it. The

[150] A number of the more senior participants in this study reported encouraging their junior staff to fill out a form if they felt patients were at risk

[151] For an overview of individual and group differences in risk perception see Breakwell (2014, Chapter3)

difference was that on that particular day they, in many cases quite suddenly, felt they had "*had enough*"[152]. The data therefore suggest that what prompted this behaviour was a relatively sudden emotional reaction to previously tolerated perceptions of risk.

This finding is important in two ways. First, this thesis has presumed throughout that all behaviour is prompted by perceptions of risk; specifically, that a changed perception of risk will always lead to a new response. Working on this hypothesis, if participants' perception of risk with regard to patient safety was unchanged but their behaviour was different they must have been responding to perceived risk, not, at least directly, to patients, but from one or more qualitatively different threats.

The raw data from participants' original description of the situation on the Datix forms offer some challenges to this explanation, since they focus exclusively on threats to patients. However, the interview data tell another story, and seem to suggest participants' behaviour in filing an adverse event report was not directly prompted by a perceived new risk to patients. When asked to recall the situation and what prompted them to file an adverse event report participants were able to give quite vivid descriptions of the circumstances, and, in particular, their feelings about the ongoing situation that most of the time they felt compelled to tolerate:

IC51 *Datix entry*

> *"Clinical observations delayed at times by four hours, unable to answer patient call bells within a suitable amount of time due to demands of the ward and capacity. Unable to deliver an expected high standard of care"*

Interview data

> *"my biggest problem at the moment with this hospital, is the capacity and how it makes staff feel. Staff do not feel that they can attend to the patients' needs, ... they don't get any job satisfaction anymore ... this one night that it just got beyond a joke really, you know ... you can tolerate so much and ... this particular night it was just, I think one patient, I was looking after a lady and she became really upset because she'd been ringing for something like forty minutes before even anyone had got to her and she needed the toilet and, you know, you can only hold on for so long before we get to you."*

[152] With the exception, noted previously, of the one participant who said s/he always reported instances of insufficient staff

IC52 *Datix entry*

> *"Workload heavy. Insufficient staffing levels to cover basic needs of patients. Patients having to wait for cares. Antibiotics given late ... Not enough staff to do observations in the morning. Patients in wet beds waiting to be changed patients on bed pans to long, not able to answer bells immediately"*

Interview data (edited to preserve anonymity)

> *"[the Ward Manger's] supposed to come in under budget and s/he always does, but s/he runs the ward really short all the time. ... [the duty managers say] "you just have to get on with it", and there's nurses in tears on this ward and there's people stressed, and there's a lot of people leaving because they just don't want it. ... and actually you're putting our registration at risk when you leave us short like that and trying to do the work that we can't possibly do"*

Thus the general threat to patients posed by staff shortages was clearly identified in the reports and indeed throughout their narratives, but the actual decision to record the situation appeared to be driven, by the emotion of the moment ("*it's beyond a joke*"; "*it was just too much*"), which had overridden their normal tolerance of the risks it posed to both themselves and others.

Breakwell (2014 Chap 5), while noting that there have been few direct examinations of how emotion influences risk perception, offers a helpful classification, supported by the literature, of six types of emotional state which may do so. Many of these emotions can be identified in the accounts of Phase 2 participants. Most were not, however, linked directly to patient safety, but to more immediate threats to the participants themselves and in some cases their colleagues, as illustrated by the examples the following table:

Table 8.1 How emotional state may influence risk perception

Emotional state (from Breakwell 2014)	**Examples from participants' accounts**
worry	"I worry about at the end of the day my PIN number could be put at risk" (IC47) "people are worried they're making, that they're going to make a mistake" (IC44)
anticipated regret	"that's what's really frustrating, is that you can't give the care that you want to give because you can't physically do it" (IC50) "The last thing that I want to see staff saying is I wish I'd reported it."(IC55)
fear	"I'm just scared, I'm worried that something will happen to them and I know that's my responsibility ... and it's my job that is at risk" (IC43) "I have a feeling of dread coming in to work" (IC51)
anger	"this has really pissed me off" (IC52) "I get really frustrated with this" (IC53) "it's unacceptable to have sixteen patients" (IC54) "I'm absolutely fuming" (IC58)
outrage	"I need to kind of put this out that this isn't right" (IC44) "she told me she couldn't put the shift out to agency just because of bureaucracy. ... I thought that was a bit off "(IC45) "I thought it was outrageous to take somebody from night duty to day duty to be a ward clerk when it should be about patient care" (IC52)
terror and panic	"it feels like [we are] completely unsupported" (IC42) "it was just like we was being hit with rocks" (IC61)

Self-reports, while they may provide an inroad to conscious feelings, are not a reliable way of identifying non-conscious elements of emotions or feelings (Joffe, 1999; LeDoux, 1998; Schooler et al, 2015). Furthermore, there is continuing debate about the degree to which emotion and feeling can be seen a) as separate, at least conceptually (Adolphs and Andler, 2018), and b) as conscious, non conscious, or indeed meta-conscious states (Morin, 2006; Schooler, 2002; Schooler et al, ibid). Besides, these *post hoc* accounts of remembered feelings do not wholly explain that initial emotional reaction which sparked the switch from tolerance to action. Participants' narratives make clear that no-one had any expectation that filing a report would do anything to immediately ameliorate the threat to patients (although some did express a hope that such actions might have a cumulative long-term effect on

policy). Nor could it be about covering themselves if something went wrong, since they had not reported many similar situations. What seemed to have happened was a breakdown of their tolerance to the stress of the moment at an almost instinctive, visceral (Weber, 2006) level, best exemplified by the participant who commented,

> *"I just completely just took my feelings out there and just said how it was"* (IC44)

Early theorists such as Zajonc (1980) speculated on whether or not it is possible that initial primitive or minimal feelings relating to a particular situation can come before cognitions, without resolving the conundrum except to conclude, in common with most theorists succeeding him, that "*feeling is not free of thought, nor is thought free of feelings*" (Zajonc, ibid p 154). Weber (2006) sees such visceral reactions as an early warning to indicate the need for some risk management action, but a warning of what threat, since it has been established that participants were not responding to a threat to patient safety.

One explanation which seems to offer a possible fit with emerging physiological theories of decision-making under stress (see for instance Arnsten et al, 2017; Hermans et al, 2017) is that what is being demonstrated here is a reaction to a (probably non-conscious and to some degree physiological) perception of risk to an individual's mental health from a level of stress which has for some reason temporarily become intolerable. The response behaviour, filing a report, although believed to have little or no effect in practical terms, could possibly be seen as a gesture which in and of itself was stress-relieving[153].

If this explanation is correct, further exploration of the circumstances which might trigger a temporary loss of tolerance to a risky situation could be very illuminating. It may be speculated, for instance, that an individual's mood[154] at the moment of loss of

[153] Further support for this particular idea came from a nursing acquaintance from a completely different hospital, who spontaneously remarked that she only put in an adverse event report about staff shortages if she really felt "*wicked off*".

[154] Mood is defined as a diffuse and non-specific affective state, (Alpert and Rosen, 1990; Ekkekakis, 2013; Frijda, 2009, 2017)

tolerance might be important. As Loewenstein et al (2001) note, there have been numerous studies showing that good moods and bad moods affect judgements and choices. Other potentially important variables might involve differing aspects of the situation in which the shortage of staff is occurring. For example, how an individual felt about the other staff on duty at the time could make a difference to their tolerance level[155].

The data collected for this study is not sufficiently focused to go beyond general conjecture on possible relationships between tolerance of perceived risk from a particular threat and other, different perceptions of risk which might disrupt such tolerance and lead to action. Such speculations could prove a fruitful field for further research. Nevertheless it is argued that the findings presented here do demonstrate some of the links between behaviour and perceptions of risk from identified threats in the 'real world' setting of an NHS hospital and have relevance for the promotion of patient safety in illuminating some of the many other influences which may affect the behaviour of healthcare staff towards their patients.

8.2 Decision-making and behaviour under risk: a possible model

This thesis is concerned with pursuing a greater understanding of decision-making and behaviour under risk, through investigation of how healthcare staff, faced with multiple threats in their work environment, assess and respond to the risks they are perceived to pose. This section moves from consideration of the specifics of the data to suggest a theoretical model of decision-making under risk outlining some of the key features of the process and accounting for some of the observed variation in responses to perceived risk.

There are many approaches to understanding decision-making under risk. Mishra (2014) divides them into two main groups, normative theories which describe what people rationally ought to do in a decision situation, and descriptive theories

[155] There was some support for this suggestion in one participant's description of the impact of an agency nurse perceived to be particularly uncooperative.

concerned with identifying (often empirically) the mechanisms involved. The model (Bennett, 2018), which has been developed as a result of this research and is described here falls into this second category. It is a simple model which does not try to explicate any of the complex internal processes involved when people assess and choose how to respond to threats. It thus attempts to avoid the pitfall of 'overintellectualizing' a decision-making system which is far more complex than can be represented in a diagram (Eiser and van de Pligt, 1988 p 181). Instead, its purpose is utilitarian, to illustrate the main findings of this study and to offer a conceptualisation of the process of decision-making under risk which considers multiple perceived threats, rather than just a single discrete threat as do many other models of the process.

It is not intended to suggest that this model should in any way supplant the many other models which have been constructed over the years to help understanding of the processes involved in decision-making (for a recent review see Pleskac et al, 2015). All have their advocates and utility in the contexts for which they were developed, and most will not be either compared or criticised here. However, two models, Maslow's Hierarchy of Needs (Maslow 1943, 1954, 1970) and Saaty's combined theories of analytical hierarchies and networks (Saaty 1987, 1999, 2008, 2013, 2016) have contributed substantially to the thinking behind the construction of the new model presented here.

The first, Maslow's Hierarchy of Needs, is not strictly speaking about decision-making but about the motivations which may prompt decisions. It has provided a framework (adapted to reflect threat avoidance rather than outcome desirability) which has been helpful in illuminating how individuals may be affected by the multiple risks they perceive.[156] However, although Maslow's classification, including his subsequent addition of a sixth level 'self-transcendence' (Koltko-Rivera, 2006) has proved apposite, the data from this study, in common with the views expressed by Wahba and Bridwell, (1976) and many others since (e.g. Diener et al, 2002), do not support the idea of an

[156] Modified to focus on threats rather than needs, see Chapter 3 for details

invariant hierarchy in which certain types of needs (or in this case perceived risks) are always attended to before others. Indeed, the opposite was the case, as the evidence suggested that participants frequently put the threats to patients' welfare ahead of even their own physical needs (e.g. for nutrition and rest).

The process of selection from multiple perceived threats is one of deciding what is the highest priority. This involves a complex process of evaluation of the risks posed by multiple threats perceived in an individual's environment before choosing to respond to that which seems to be most important and urgent. The second useful conceptualisation of this decision-making process was the model based on Saaty's theories of analytic hierarchies and networks, which he has elaborated over many years.

> *"A hierarchy is comprised of a goal, levels of elements and connections between the elements. These connections are oriented only to elements in lower levels. A network has clusters of elements, with the elements in one cluster being connected to elements in another cluster (outer dependence) or the same cluster (inner dependence). A hierarchy is a special case of a network with connections going only in one direction."* (Saaty 2008 p 4)

Saaty's theories offer a compelling picture of the complexity of the decision-making process[157], and despite being oriented towards motivational goals rather than responses to perceptions of risk, his conceptualisation resonates well with analysis of the data collected in this study which also suggested that individuals commonly ranked (albeit in reverse order from Saaty's) perceived risks in order of priority, the most urgent being selected for response. While it was not relevant to apply Saaty's method to analyse participants' data, his fundamental conception of decision-making as an extremely complex prioritisation process, with the challenge being to determine the alternatives people consider and how they choose the elements identified is very apposite and supports the empirical focus of this research.

[157] However, it should be noted that his theoretical outline of the decision process was only an adjunct to his main purpose, which was to offer a method of assisting people who need to make complex decisions, adding to the large number of other approaches to Multi-Criteria Decision-making (MCDM), For a review of 12 such approaches see Velasquez et al (2013).

One issue should be considered in relation to developing a new model based on the empirical data in this study. Initially, it was presumed that identified threats would be conceptually discrete, however, this was not the case and many of the threats identified by participants were subsumed by one major threat, that of staff shortages. Thus the environmental context is one in which one specific threat is dominant in the thinking of participants, is perceived as stressful, and is productive of a heightened degree of emotion. Since this was an unexpected finding, it should be asked if this is likely to affect any conclusions which may be drawn about decision-making and behaviour in response to perceived risk. However, the purpose of the study was not to evaluate the size or characteristics of any threat, but only to attempt to trace influences, first on the processes of determining salience and then on the subsequent choice of behavioural response. It is therefore argued that, far from having a deleterious effect, the identification of one key threat may, because it was so central to all participants' thinking, have enhanced the likelihood of being able to trace the processes involved. This is particularly likely in Phase 2 where a single behavioural response to the salient threat, the filing of an adverse event report, could be traced back through the decision-making process of the 27 participants in a way which might not otherwise have been possible.

The essence of the new model presented here lies in its conceptualisation of decision-making as consisting of two levels. In the first level (illustrated in Figure 8.1) multiple perceived threats in a particular domain are assessed through a process involving both conscious and non-conscious cognitions and emotions, prioritised according to salience, and the focal (most salient) risk is selected. The second level is subject to the same sorts of influences as the first and involves similar assessment processes, but only relating to the most salient threat, after which the most appropriate behavioural response is selected. Figure 8.2 shows the complete model (Bennett, 2018) including both levels of decision-making.

Figure 8.1: First level of decision-making under risk

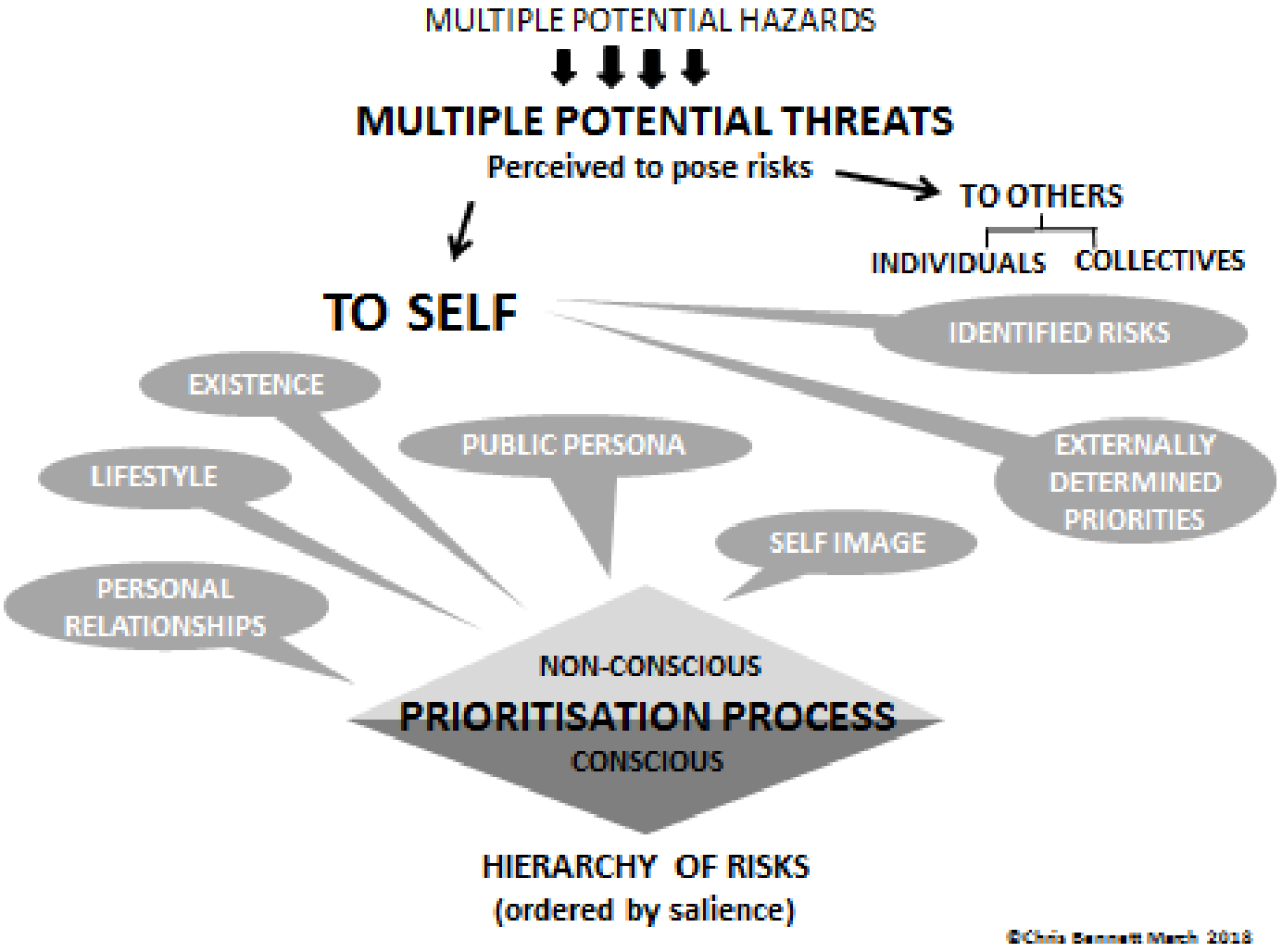
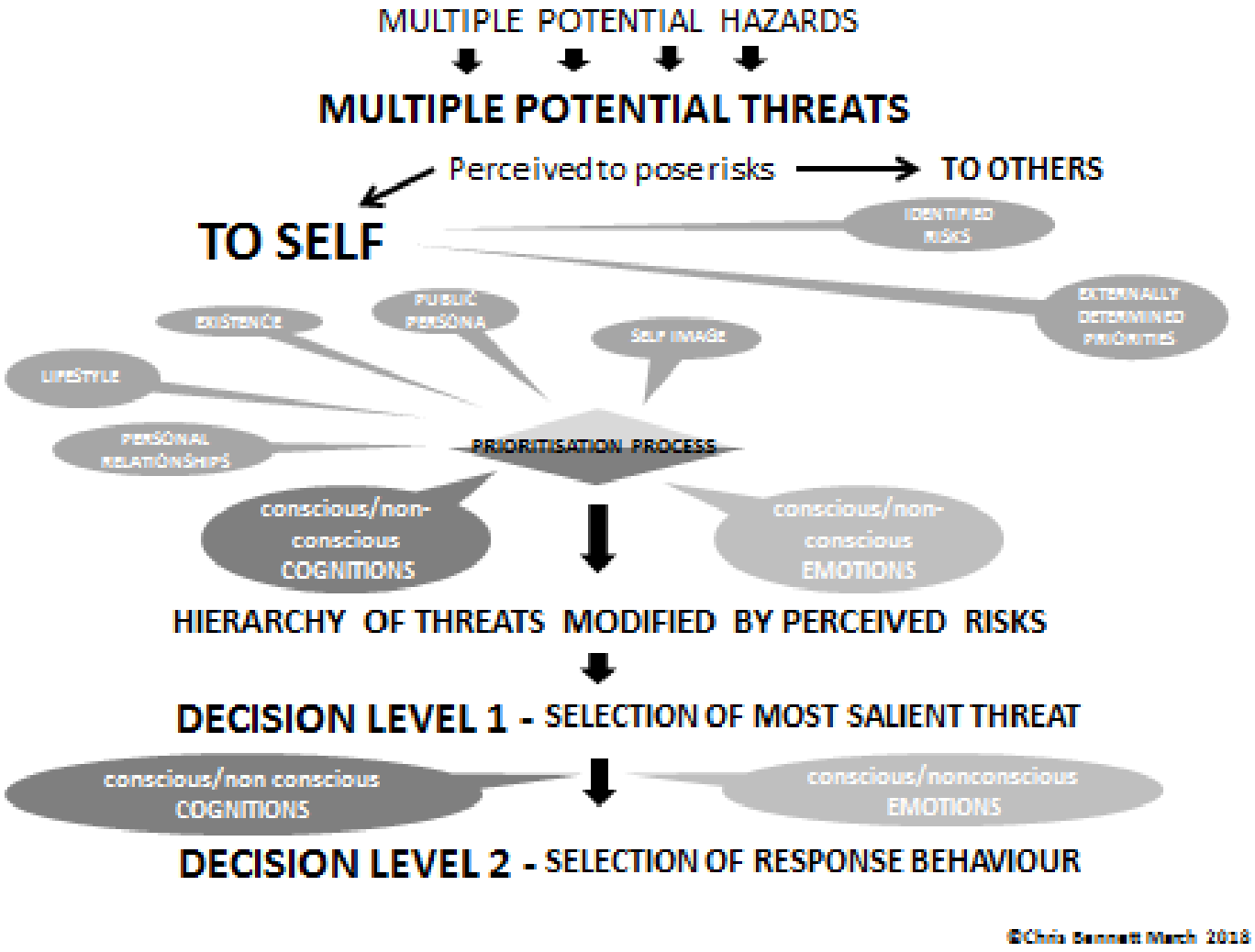


Figure 8.2: A two-level model of decision-making under risk



This two-level conceptualisation of the process of recognising and responding to multiple threats is, as far as can be ascertained from reviewing the literature, a novel one. Booth and Wheeler (2008 p 4-5) in their examination of how people deal with strategic dilemmas concerning issues of security, do indeed suggest two successive levels of decision-making, the first involving what they call "*dilemmas of interpretation*" of a threat and the second, "*dilemmas of response*". However, these are clearly not the same as the ones proposed in this thesis. Instead, like many other models of the decision-making process they refer to a process of deciding about the nature of one specific threat and how, once this is determined, to respond. Hence their levels could be seen as referring to a process intermediate between the decision levels 1 and 2 in the model proposed here.

Scheibener and Brand (2015) also offer a model of decision-making which bears some similarity to, and indeed usefully elaborates part of the two-level model (Figs 8.1 and 8.2) described here. Their conceptualisation, which itself is based on an earlier model (Brand et al, 2006), draws on knowledge about the neuro-cognitive processes involved in the decision process, and the effects on choice of emotion (which they term "*impulsive processing*") and cognition ("*reflective processing*"). Again, however, theirs is a single level model which does not differentiate between processes leading to choice of salience and those culminating in action.

Another aspect of this new model which is thought to be distinctive is that it is based on the conceptualisation of behaviour used throughout this research as a response to perceived risk, rather than as being motivated towards a preferred outcome. Since Vroom (1964) first proposed expectancy theory and Kahneman and Tversky (1979, 1992) developed prospect theory a great many explanations of behaviour either explicitly or implicitly assume a stance that sees decision-making in terms of what the individual hopes to achieve. While there is nothing wrong with this approach, it is argued that the alternative perspective used here is more helpful where the purpose is to identify people's awareness of threats in their environment and their perceptions of the risks to themselves and others that they may present.

As noted, this is a very simple model, and it is fair to criticise it on this count alone, as a too simplistic reduction of a hugely complex process. A more specific criticism is that all the arrows are in one direction. It thus does not take account of the feedback process which is likely to occur in nearly all decision-making situations (Schiebener and Brand 2015), and is especially likely during the prioritisation process. A good example of a model of decision-making which includes feedback loops is Lerner et al's (2015) emotion-imbued choice (EIC) model . This is in itself quite complex, and yet only covers emotional influences on the process, leaving out the cognitive entirely. Thus, to have attempted to incorporate feedback from both cognitive and emotional assessments into this model would, it is argued, have massively increased its complexity while distracting from its purpose in illustrating the two-level decision-making process.

A final point to make in this section is that while one function of a conceptual model is to aid understanding of a system or process, another valuable function is to serve as a starting point for further research. Models of this nature are, in effect, mini hypotheses, sometimes developed from existing theory but sometimes also developed, as in this case, directly from collected data. If any such model is hoped to be useful in the future, perhaps in settings other than the one in which it was generated, it is essential to determine its quality (Moody 2005). This can only be done through further empirical research focused directly on investigating its validity and replicability.

8.3 Summary, conclusions and suggestions for the future

This chapter has sought to bring together the findings reported in Chapters 5,6 and 7, and to explore and critically evaluate them in the light of what is already known about decision-making under risk and the behaviour of healthcare staff in hospital settings.

The findings confirmed the original propositions that participants did perceive multiple qualitatively different threats in the hospital environment, to their patients, to other staff, to City Trust (and even more globally the NHS), and to themselves. They also confirmed that the perceptions of risk generated were prioritised for action according

to salience, which could vary if circumstances changed. An unexpected finding was that emotion sometimes appeared to prompt change in behaviour even when cognitive assessments of risk remained the same. A process model of decision-making under risk was proposed which illustrated the two levels of decision-making suggested by the data.

8.3.1 Questions of validity and reliability

It is important here to address the question of the extent to which these findings may be seen as valid and reliable. There are a number of caveats. The first and most significant is that participants in both phases were self selected[158] , and may have seen the research as an opportunity to express concerns, in particular about patient welfare, which were not shared by their colleagues. This may have led to undue weight being given to the importance of perceptions of risk in relation to threats to patient safety in the analysis. This possibility has obvious ramifications in terms of one aim of this research, determining the extent to which staff perceptions of risk may impact patient safety in hospitals. It is argued, however, that the supporting evidence is strong. First, participants' accounts indicated that they believed their colleagues shared their anxieties. Secondly, despite some of the data having been collected nearly a decade ago, prior to the reports about staffing issues at Mid Staffordshire NHS Foundation Trust (Francis, 2010, 2013), following which hospital trusts all over the country reported making improvements in care quality and staffing levels (Thorlby et al 2014), recent media coverage, government reports and the academic nursing literature all point to the likely validity and reliability of the findings, were this study to be replicated.

On the other hand, selection bias should have no effect on the other aim of the research - to demonstrate and detail links between behaviour and perceptions of risk from identified threats in the 'real world' setting of an NHS hospital. This is because the confirmation or otherwise of the original propositions does not depend on what

[158] For details see Chapter 3 Methods

threats are being identified, selected or responded to, it is only necessary to explain the process involved.

It is also important to consider the possibility of bias introduced during the interview process. Each interview began by asking people to describe their working day (Phase 1) or the day on which they filed a specific adverse event report (Phase 2), and people were encouraged to describe this in their own words. However, it is always possible in open-ended interviews that chance remarks by the interviewer could influence what is reported. Prompts and open-ended questions following the initial narrative clearly did encourage people to discuss particular issues, and interviewer selection of subjects expected to be of particular interest may well have led to other matters, possibly of more relevance, being excluded. One particular instance of bias which may have affected data relating to an important aspect of the decision-making process was that in Phase 1, before the author became aware of the extent to which the term would have pejorative connotations for staff, the word 'prioritise' was used in the initial preamble to the interview.

> *"I would like you to go through today on the ward. I am interested in what you did, how you made decisions on how to manage and prioritise your work, and how you coped with any unexpected events."* (Phase 1 Interview Schedule)

Approximately a third of participants in this phase went on to use that specific term and it cannot be determined to what extent its use in the schedule affected their accounts.

Another important issue relating to validity and reliability is that the interpretation of the data and the conclusions drawn from that is the work of one individual, the researcher. No-one else has been involved in the process of coding and analysis; nor has it been possible to contact the original participants to ask them for their views on how their data has been construed and presented. There is also no way of minimising the multiple sources of bias relating to: the researcher's preconceptions; non-recognition and hence non-consideration of relevant data; and misinterpretations of what was considered relevant, that must inevitably have been involved. Such sources

of bias can only be addressed through further research designed to deal with these issues.

8.3.2 Implications for healthcare and risk research

This study was designed to explore processes of decision-making taking place in the real-world setting of an NHS hospital. It was hoped to shed further light on the links between risk perception and behaviour and, in particular, the circumstances under which one perceived threat may take precedence over another, when it is necessary to make choices about how to respond. The findings have implications both for healthcare and for risk research generally.

Implications for healthcare

Although the main focus of this study was to illuminate the processes by which people make decisions faced with multiple threats in their environment, it is impossible to ignore the issues raised by some of the key findings for patient safety and the NHS.

Participants reported great concern about the perceived risk to patients from staff shortages which required them to reduce the standard of care they delivered. They said they frequently had to choose to behave in a way which was in conflict with their professional and personal value systems by putting patients at risk of harm. This conflict was stressful, to the extent that some had considered leaving, but their remaining in post suggested they were currently able to tolerate the threat to their self concept despite the dissonance created.

The fieldwork for this research was completed several years ago, however, the likelihood of an association between staffing levels and a risk to patient care is supported by evidence from more recent academic sources (see, for instance Papastavrou et al, 2014a, Recio-Saucedo et al, 2018). Shortages are not just about numbers of staff and a number of participants in this research also raised the issue of skill mix. A large multi-national study (Aiken et al, 2012) found that each additional patient per qualified nurse increased the odds of nurses reporting concerns about care and safety. Additionally a large study of hospital nurses from six European countries

(Aiken et al, 2017) found that workforces containing a smaller proportion of qualified nursing staff were associated with worse outcomes for patients. In the UK, a recent analysis from the Health Foundation (Buchan et al, 2017), demonstrates that both trained and student nurse numbers in the NHS are continuing to fall, offering statistical evidence in support of its claim of a "*worsening situation*". They also address the issue of skill mix, pointing out that the Royal College of Nursing attributes rising numbers of support staff (e.g. healthcare assistants) to unfilled registered nurse posts being filled by care assistants (Keogh, 2017).

Most tellingly, in terms of support for the findings in this study, the following words from the recent Care Quality Commission report "Opening the Door to Change" (Care Quality Commission, 2018) on the challenges faced by staff in relation to patient safety issues could easily have been written as part of the narrative of this thesis.

> *"Staff at both leadership and frontline levels told us that they felt overwhelmed by the volume and nature of the demands currently placed on them. The number of alerts and amount of other information from multiple organisations, for example about different targets and initiatives, can be unmanageable. There are also substantial pressures on organisations to meet targets that focus on patient flow and throughput, which can conflict with processes designed to ensure safety.*
>
> *These challenges are not only evident in trusts rated as inadequate or requires improvement. Trusts with services rated as outstanding for safety told us they faced similar issues when implementing alerts, including a lack of skilled and experienced staff, high turnover of staff, and reliance on less qualified staff taking on more senior roles."* (Care Quality Commission, 2018 p 14)

Similarly, the words of this nurse, interviewed in January 2018 for a BBC news item which had the headline "*NHS 'haemorrhaging' nurses as 33,000 leave each year*" (Triggle, 2018), explaining why she had left the profession shortly after graduating, echo the emotions expressed by so many of the participants interviewed for this research.

> *"I want to be a great nurse and I want to give my patients my best, but I feel that I can't do that at the moment because we're just too short-staffed, too busy, there are far too many things for us to be doing. ... I want to work for the NHS, it's such a brilliant thing, [but] I don't think I can." (Mary Trevelyan 2018)*

This research does not seek to contradict attributions of an association between staffing levels and a risk to patient care. Indeed it would be hard to do so since they correspond so directly with the views of participants. Nor does it offer any suggestions or recommendations concerning how this persistent issue should be tackled. The findings do, however, illuminate the importance of the issue in the minds of healthcare staff and their need to respond to staff shortages as the most salient threat to patient safety. This was seen as impacting not only patients, in terms of the tasks staff were or were not able to carry out, but also themselves in having a negative effect on aspects of their own lives, particularly the standards and values which were important to them, and causing them considerable stress.

Implications for risk research

This study addresses an under-researched aspect of risk perception and decision-making, how individuals perceive, and prioritise for action the multiple threats in their environment. It demonstrates, in the 'real world' setting of an NHS hospital, numerous different behaviours exhibited by healthcare staff and suggests some of the ways in which these may be linked to identification of threats and the risks they are perceived to pose.

While many of the findings were as predicted from the original research propositions there were some surprises, notably the degree of tolerance exhibited by participants in the face of a specific threat, shortage of staff, that they perceived themselves as unable to influence.

A number of different psycho-social theories offering explanations for the reduction of dissonance and development of tolerance in the face of perceived irreducible risk were suggested. These included theories of compliance and conformity, attenuation of perceptions of risk over time, and permanent alteration of individuals' personal and professional values and standards involving reducing dissonance by developing a real belief that the revised practices represented acceptable care. This was reinforced by organisational norms which reflected government pressures to meet financial targets.

While many of these explanations resonated with the data, they did not wholly account for evidence that many participants had developed a level of stress reduction which allowed long-term functioning in their role. It was suggested that this finding could in most cases be explained by a combination of accepting their inability to change the situation, followed by internal revision of their self-concept from believing themselves to be helpless to seeing themselves as achieving the best standard of care possible in the circumstances.

An unexpected finding was that sometimes individuals suddenly took specific action (reporting insufficient staff as an adverse event), although their perception of the risk to patients was unchanged from one they had previously tolerated, and although they continued to believe that action would be ineffective. It was speculated that this could be due to a sudden emotional reaction at a visceral level which eased stress to themselves by making a gesture. This phenomenon could have considerable importance, not only to the development of increased insight into conscious and non-conscious processes underpinning decision-making in response to risk, but also in illuminating apparently inexplicable actions, such as inconsistent adherence to safety instructions and procedures, which may have significant impact on understanding and preventing adverse events.

The role of both changes in context and the passage of time in both these processes appeared highly important and supported the SARF framework (Kasperson et al, 1998) in demonstrating both attenuation (development of tolerance) and amplification (raised perception of risk due to a sudden emotional reaction).

Finally a model of decision-making under stress was presented. It was suggested that this model, though a very simple one, did fit with the findings of the study and differed from other models in that decision-making was conceptualised as having two levels. The first was conceptualised as selection of the focal threat from the many recognised in the environment and the second as determining a response to that threat. The model, in focusing on response to threats rather than on motivation, also illustrated this distinctive approach to consideration of the data which has proved fruitful in enabling multiple sources of threat to be identified.

It is argued that findings presented here are interesting and potentially important, both in increasing understanding of how people respond to perceived risk and in showing how such processes may have relevance within the health service in relation to issues affecting patient safety. In addition it is thought that some of these findings may be generalizable to other organisational settings where high priority is given to ensuring the safety of others.

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APPENDICES

Interview Protocol Phase 1 (Ist Version)

INTERVIEW SCHEDULE

Preamble:

I am interested in the work you do, how you make decisions on how to manage and prioritise routine tasks, and how you cope with unexpected events which may interfere with normal routine. I'd like to record our conversation, but I will be the only person who hears it and you will not be identified any information I use.

request and answer any questions

Routine work

First of all, could you tell me about a routine day on the ward?
anything else?
How much of your work involves filling in forms or admin tasks?
anything else?

Dealing with time pressures

Does what you have to do vary very much from day to day?
in what ways?
what sorts of things would cause routine work to be interrupted?
how would a quiet day differ from a busy day?

Thinking about your job description. To what extent does it reflect what you actually do when you are working?
what differences are there?

How do you manage your work if you are very busy?
what tasks take priority?
what is and is not safe to leave till later? how do you decide?
do you ever have to leave things undone altogether?

What made you want to do this job originally?

What are the best and worst bits about the job?

How important is your job in relation to your life outside the hospital?

Adverse events

Now I would like you to think a bit about issues involving safety of patients and staff. Are there risks involved in the work you do on the wards?
what issues would you feel were most important?
patients/self/otherstaff

Have you been aware of any safety problems that have occurred on this ward?
description of problem/s
outcomes

Were any of these recorded as adverse events?
Have you ever been personally involved in an incident that was potentially life threatening?
description of event
what decisions did you have to make?
what possible outcomes/consequences concerned you?

Perceptions of NHS

The NHS always seems to be in the news one way or another. Do you think the general public thinks of the NHS in the same way as you do?

Review

- **We have come to the end of the interview. Is there anything else you would like to say about anything we have talked about?**
- **Is there anything else I should have asked about?**

Thank you very much indeed for taking part.

Interview Protocol Phase 1 (2nd Version)

INTERVIEW SCHEDULE

Preamble:

I would like you to go through today on the ward. I am interested in what you did, how you made decisions on how to manage and prioritise your work, and how you coped with any unexpected events. I'd like to record what you tell me, but I will be the only person who hears the recording and you will not be identified in any information I use.

request and answer any questions

Today on the ward

Could you start by talking me through your day, from when you came on duty to now. I may interrupt you from time to time to ask questions about what you are telling me.

why did you do that?
how did you decide on priorities?

Variations from normal routine

Has today been very different from a normal day? in what ways?
Did you feel under unusual pressure at any time? why?
Were there any routine things which you had to do differently, or not at all? anything else?
How easy or difficult was it to make those choices? criteria used?

Perceptions of risk

Was there anything you did or did not do today that you felt put a patient or patients at risk of harm?

(if YES)
Can you tell me a bit more about that? description of decision/s
what possible outcomes or consequences were you concerned about?

Do you feel that you were completely responsible for taking that decision, or do you feel that there were other people or organisations who contributed to it? who or what?
how did they contribute to it?

Adverse events

Have you ever been personally involved in a really worrying incident concerning a patient or patients?
description
was it recorded as an adverse event?
what were the outcomes/consequences?

Personal details and views

How long have you worked in the NHS?

What made you want to do this job originally?

What are the best and worst bits about the job?

Review

- **We have come to the end of the interview. Is there anything else you would like to say about anything we have talked about?**
- **Is there anything else I should have asked about?**

Thank you very much indeed for taking part.

Interview Protocol Phase 2

INTERVIEW SCHEDULE

Preamble:

give assurances of anonymity and confidentiality, request and answer any questions

First of all, could you tell me your grade/position and how long you have worked on/in this ward/department.

The adverse event:

I would like to talk about .... (the adverse event details). I am interested in what happened, what was going on around you at the time and as much as you can remember of your thoughts and feelings and the decisions you made. Could you tell me as much as you can remember of the day when the incident was reported, from when you came on duty to the time when you decided to put in an adverse event report.

details

Were there times when you were aware of making choices between different courses of action?

how did you decide on priorities?

(probe for possible unconscious decision points in narrative)

what about (x,y,z), what other options did you have?

Was that day different from a normal day in any way? (if YES) in what ways?

details

What made you decide to put in a report?

trigger/s for behaviour, what possible outcomes or consequences were you concerned about?

What would you say was responsible for what you did?

were other people or organisations involved - how did they contribute to the incident?

What did you think would happen as a result of you putting in the report?

any bad consequences for self/others - was action expected?

Perceptions of risk:

What risks did you see in the situation

who/what was at risk - patients, self, staff, others?

Were you aware of anything else on that day that might have posed a threat to patient safety?

(if YES) Can you tell me a bit more about that? description of incident/s as above

what possible outcomes or consequences were you concerned about?

Other adverse event reports:

Is this the first time you have reported an adverse event? (if YES) What sort of things have you reported?

what type? how many? when? any remembered details?

Thoughts and feelings about work in the NHS:

At work, do you ever find you are worrying about things not directly concerned with the patients?

personal concerns? other staff? home and family? organisational matters?

When you are off duty, do you worry about things at work?

details

Other than your job, would you say you were often worried about things?

details

Personal details and views:

How long have you worked in the NHS?

What made you want to do this job originally? Best and worst bits about the job?

Review:

We have come to the end of the interview. Would like to say anything else about anything we have talked about? Is there anything else I should have asked about? Thank you very much indeed for taking part.