An Ethnographic Study of Threats to Patient Safety in the Operating Theatre

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Executive Summary

Introduction
Patient safety has become a health policy priority around the world. In the UK, adverse events cost the National Health Service an estimated £2 billion a year in additional hospitals stays alone, without taking into account the human or wider economic costs. A significant proportion of adverse events are associated with a surgical procedure and a third of the referrals from NHS hospitals and community trusts to the National Clinical Assessment Authority, an advisory body on doctors' performance, is about a surgeon. In 2002, in recognition of the high-risk nature of the operating theatre environment, the Department of Health commissioned ethnographic research examining threats to patient safety in the operating theatre. This report represents one of the outputs of that research process.

Methods
The study used ethnographic methods. A central objective of ethnography is to understand both the social meaning given to objects, actions, and events and the way in which these meanings reflect, reiterate and renegotiate wider social discourses and cultures. This involves studying behaviour in everyday, rather than experimental, settings. One member of the research team was based within the operating theatres department of a large teaching hospital on a full time basis for eighteen months. During this time the researcher observed activity within the department and engaged in informal conversations and conducted formal interviews with members of staff. The data collected in this way were supplemented with analysis of documentary evidence such as hospital policies, notes of meetings and organisational charts.

Research findings
Organisations with a positive safety culture are seen as being characterised by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures. Our study found that whilst all staff agreed on the importance of safety in principle, a shared perception on what constitutes safe practice was lacking. Indeed, different groups of staff held different beliefs about adverse events, risk and error reporting.
In addition, confidence in the efficacy of preventive measures varied between different groups of staff. In particular, doctors’ views with regard to these matters differed markedly from those of managers and nurses.

Furthermore, the emphasis within current safety orthodoxy on rules and standardisation, in a context where beliefs about the value of such approaches differ between groups of staff, appears to contribute adversely to the development of trusting relationships between doctors and other groups of staff.

Blame was mentioned as a barrier to error reporting, but other factors (e.g. a belief that mistakes are inevitable and not preventable, the view that since doctors develop highly individualised routines, there is limited potential for learning from other people’s mistakes) mean that, amongst doctors in particular, error reporting is not seen as a worthwhile exercise.

Operating theatres are part of a complex system. In particular, our data highlight that workload planning and theatre timetabling must be informed by an appreciation of wider systems factors, as opposed to focusing on discrete elements and simply monitoring the actual versus planned time taken to complete operations.

Discussion
Whilst the rule-based approach to patient safety has achieved the status of accepted wisdom in policy circles, it does not appear to command support from the doctors in our study. The implications are that an emphasis on increased use of protocols is unlikely to produce the benefits anticipated. Furthermore, pursuing a protocols-based approach to the delivery of care may have unintended, detrimental consequences.

If, as seems likely, doctors’ views regarding error and safety find their genesis, in part, in aspects of medical education and socialization into medicine, attempts to increase error reporting amongst medical professionals will fail if the socialization processes which commence early on in the careers of medical professionals continue to reinforce the belief that errors are occupational hazards which cannot be prevented.

The emphasis on creating a safety culture and definitions of ‘weak’ safety culture based on the absence of certain features (e.g. lack of specific protocols, inadequate reporting systems) may create the impression that in health settings there exist
spaces which need to be filled with ‘high-reliability’ processes. This ignores the presence of unwritten rules which govern behaviour in organisations. Rather than focusing on what is absent and speculating on why progress is so slow, our findings suggest that it may be more fruitful for future researchers to explore the unwritten rules which govern behaviour in these settings and examine the ways in which such rules are produced, maintained and accepted as legitimate.

Conclusions
Our findings raise questions about the emphasis in Government policy on reducing the existence of a blame culture and the extent to which this will dramatically increase error reporting. To talk of ‘a’ blame culture or ‘a’ safety culture ignores the existence of different norms, values and attitudes amongst the different staff groups we observed. It may make more sense to talk of different identities and the different attitudes to risk, blame and error associated with these.
1. Introduction

1.1 Adverse events in health care settings

1.1.1 The scale of the problem

The issue of patient safety has become a health policy priority around the world. Media stories of catastrophes and mishaps in health care settings draw public attention to the issue (Millenson, 2002) and may create the impression that such events are but the tip of a very large iceberg (Lester and Tritter, 2001). The Harvard Medical Practice Study (Brennan et al. 1991) found that 3.7% of patients were unintentionally harmed during the course of their treatment in hospitals in New York State. A review of the medical records of over 14,000 admissions to 28 hospitals in New South Wales and South Australia revealed that 16.6% of these admissions were associated with an "adverse event", which resulted in disability or a longer hospital stay for the patient and was caused by health care management; 51% of the adverse events were considered preventable (Wilson et al. 1995). A retrospective review of medical and nursing records in two acute hospitals in Greater London suggested that 10.8% of patients experienced an adverse event, with an overall rate of adverse events of 11.7% when multiple adverse events were included. About half of these events were judged preventable with ordinary standards of care. A third of adverse events led to moderate or greater disability or death (Vincent, Neale and Woloshynowycz 2001). In the UK, adverse events cost the National Health Service an estimated £2 billion a year in additional hospital stays alone, without taking into account the human or wider economic costs (Department of Health, 2000).

1.1.2 Patient safety in the operating theatre

1.1.2.1 Background to the problem

A significant proportion of adverse events are associated with a surgical procedure (47.7% and 50.4% in the Harvard and Australian studies respectively). A prospective examination of outcomes for over 4,500 surgical patients in a US University teaching hospital suggested that between thirty and fifty per cent of major complications in patients undergoing general surgical procedures are avoidable (Healey et al. 2002). In the UK, a third of the referrals from NHS hospitals and community trusts to the National Clinical Assessment Authority, an advisory body on doctors' performance, is about a surgeon (White 2002). Furthermore, the 'emotive and largely hostile' (Davies and Shields, 1999) reporting of the General Medical Council's inquiry which resulted
in verdicts of professional misconduct against three senior doctors at Bristol Royal Infirmary, combined with other highly publicised surgical cases (for example of gynaecological surgeons Rodney Ledward and Richard Neale, who were both struck off after a series of botched operations and the death of a 70 year-old man five weeks after the operation, during which his healthy left kidney was removed) paint a view of such events as more than just isolated lapses, are highly critical of professional self-regulation and point to wider systemic failings which need to be tackled.

The report of the public inquiry into children's heart surgery at the Bristol Royal Infirmary 1984-1995 (2001) echoed these sentiments, recommending an approach to patient safety based on designing safer systems and increasing regulation. The report highlights the need to abolish the ‘culture of blame’ which discourages professionals from reporting clinical errors and sees ‘cause for optimism’ in ‘the development of clinical guidelines through the National Institute for Clinical Excellence, and the monitoring of performance’ against these guidelines (2001, p. 17).

1.1.2.2 Factors predisposing to error in the operating theatre

Human factors research has highlighted a wide range of factors which have the potential to predispose to error, many of which may be relevant to the operating theatre environment. These include poor communication, fatigue and cognitive error. Sexton et al.'s (2000) study highlighted differing perceptions of teamwork among team members and reluctance of senior theatre staff to accept input from junior members as a further factor predisposing to error. In the context of anaesthesia data from the Australian Incident Monitoring Study (AIMS), based upon 2000 anaesthetic incidents, Williamson et al. (1993) identified the following as the twelve most commonly occurring contributing factors; Misjudgement (16%), Failure to check equipment (13%), Fault of technique (13%), Other human factors problems (13%), Other equipment problem (13%), Inattention (12%), Haste (12%), Inexperience (11%), Communication problem (9%), Inadequate preoperative assessment (7%), Monitor problem (6%) and Inadequate preoperative preparation (4%).

However, other studies suggest that many of the adverse events classified as operative may on closer inspection be due to factors not directly related to surgical procedures. In Neale et al.'s (2001) study less than 20% of preventable adverse events were directly related to surgical operations or invasive procedures and less than 10% to misdiagnoses. 53% of preventable adverse events occurred in general
ward care (including initial assessment and the use of drugs and intravenous fluids) and 18% in care at the time of discharge. Probable contributory factors in these errors included dependence on diagnoses made by inexperienced clinicians, poor records, poor communication between professional carers, inadequate input by consultants into day-to-day care, and lack of detailed assessment of patients before discharge.

1.2 Improving patient safety in the NHS- the policy response

1.2.1 In June 2000 the Department of Health published ‘An Organisation with a memory’ (OWAM), the report of an expert group on learning from adverse events (Department of Health 2000). This highlighted the lack of research on learning from errors in health care and the apparent failure of the NHS, as a system, to learn from serious adverse events, as demonstrated by the recurrence of specific incidents or incidents with similar root causes a number of times over a period of years. OWAM stressed the need to go beyond examination of individual behaviour to investigate the wider systemic causes of adverse events. In particular, the report identified two areas in which the NHS could draw important lessons from experiences in other sectors: organisational culture and reporting systems. In its follow up report ‘Building a safer NHS for patients, Implementing an Organisation with a memory’ the Department of Health announced the establishment of a system to ensure that learning from adverse events takes place across the NHS as a whole. The emphasis in this system is on ‘developing a reporting culture, root cause analysis of adverse events including specified near misses, thinking about systems and making learning effective so that risk and recurrence are reduced.’ (Department of Health 2001, p20).

1.2.2 In July 2001 the National Patient Safety Agency (NPSA) was created to ‘coordinate the efforts of the entire country to report, and ...learn from mistakes and problems that affect patient safety’. The NPSA’s ‘Seven Steps to Patient Safety’ places great emphasis on the need to for health care organisations to foster a ‘safety culture’. This is said to involve fostering a willingness to report and learn from errors and the possession of a shared set of beliefs, attitudes and norms in relation to what is seen as safe clinical practice. The alleged existence of a blame culture in the NHS, which views error as arising from individual incompetence as opposed to systems failures, is seen as a barrier to the understanding and management of clinical error (NPSA, 2004). However, given the emphasis on rules and standardisation, there is an implicit assumption in this that a ‘shared set of beliefs’ will be based on clinical
Human fallibility and the inability of individuals to adequately assess risk, due to cognitive biases, provides support for a rule-based approach to clinical practice that aims at reducing error (Parker and Lawton, 2003). Rule based solutions, which focus on systems rather than unsafe or incompetent individuals are seen as compatible with and furthering the development of a safety culture. In the context of evidence based medicine (Sackett et al, 2000), clinical governance (Scally and Donaldson 1998) and current patient safety initiatives (Department of Health 2001; NPSA, 2004), increased significance has been given to the role of clinical guidelines in reducing the variability of clinical work and thereby increasing the quality of care. It is assumed that the experiences of other high-risk industries, which use standardised rules and guidelines to direct and ‘checklist’ behaviours in key safety or risky situations (Reason and Hobbs, 2003; Leape 1999) can be transferred to health settings. The formalisation and standardisation of work tasks, in the form of evidence-based guidelines, checklists and systematic processes, are seen as reducing the opportunities for sub-standard and variable care by directing behaviour in areas where there are recognised high-risk or complexity tasks (Parker and Lawton 2000).

A recognition that ‘to err is human’ together with a faith in designing systems that reduce error and make them safer for patients (Nolan, 2000) underpins the current orthodoxy of clinical risk management. This draws on theories of human error derived from social and cognitive psychological research, as well as ergonomics and human factors research (Kaye and Crowley, 2000; Berwick, 2001; Reason 1997; Reason 2000). The approach aims to move towards designing safer systems and away from blaming individuals, with an emphasis on designing ‘high reliability’ organisations. Recent comments by the Chief Medical Officer for England highlighting poor design of the NHS’s safety systems, inadequate reporting processes, and a lack of specific protocols resulting in a "weak" safety culture suggest that progress has been slow in this area (Hargreaves, 2003; Stryer and Clancy, 2005).
1.3 Standardisation and clinical practice – learning from the literature

1.3.1 Efforts to systematise medical decision-making and reduce variation have previously been justified on the basis that variations were questionable *per se* and that they represented an inefficient use of resources (Wennberg et al. 1982; McPherson, 1982). More recently, enhanced standardisation of clinical work is promoted on the assumption that following protocols or rules will limit the potential for wrong-doing or human error and result in safer health care systems.

1.3.2 However, not everybody is convinced of the value and appropriateness of rule based approaches. Even amongst some supporters of a human factors approach to patient safety, the suggestion has been made that strategies ‘based on outmoded theories of control and standardisation’ hark back to Taylorist ‘scientific management’ (Taylor, 1911), erode trust and have little place in a modern healthcare system (Berwick, 2003).

1.3.3 Recent research based on hypothetical questions suggests that doctors and nurses hold different attitudes towards rule based approaches to care. Doctors are much less likely than nurses and midwives to frown upon and report violations of clinical protocols by fellow professionals (Parker and Lawton, 2000) and doctors appear to hold less systematised, more individualistic conceptions of clinical work than nurses (Degeling et al. 2003).

1.3.4 In the context of the operating theatre, Pope’s ethnographic study of surgeons treating urinary incontinence reports a tension between evidence-based surgery and everyday surgical work. She identified three sources of variation with regard to the practice of surgery; differences between patients, between surgeons and ‘external’ influences relating to differences in the environment and resources which supported surgery (Pope, 2002). These elements, together with chance or ‘that which might happen’, combine to create circumstances in which surgeons have to respond flexibly and immediately. It is difficult, therefore, Pope suggests for surgeons to follow the rules of evidence-based medicine.

1.3.5 Pope also points out, however, that the procedures she studied may be less routine or standard than others, which raises questions about whether her findings have relevance beyond urinary incontinence surgery. It also suggests that surgeons’
unwillingness to follow rules reflects the non-routine and uncertain (Fox 1957) nature of surgical work.

1.3.6 The suggestion that doctors are resistant to clinical guidelines does not necessarily mean that they do not follow rules. A shift in perspective from the cognitive bias literature and the internal workings of individual minds (which informs much of current safety policy), to a social perspective, which incorporates the ways in which individuals and groups interact, provides a useful lens from which to examine the social rules which influence action and interaction in healthcare settings.

1.3.7 All social groups generate their own social rules that serve to define the limits of acceptable behaviour (Becker 1963). They may not be written down and they are not necessarily constructed in a formal way, rather they emerge and are sustained through the interactions of the social group. As Howard Becker (1963: 182) writes ‘people act…together. They do what they do with an eye on what others have done, are doing, and may do in the future. …Individuals may engage in intense and persistent interaction even though they never engage with each other face to face’. From this perspective the idea of deviance from rules is a collective and social process and not merely an individual activity. As Becker points out infringing social rules can serve to label or classify the individual as some form of deviant or ‘outsider’ from the social group. However, it is also important to appreciate that rule-breakers may not necessarily regard certain rules as legitimate or identify with the rules written for them by members of other social groups.

1.3.8 Bosk’s (1979) ethnographic study of the surgical training program in a US hospital illustrates how the behaviour of surgeons is governed by many rules, though not necessarily the sorts of rules that advocates of clinical guidelines and standardisation would recognise as being conducive to improved patient safety. Bosk found that specific types of error were constructed in the social relationship of surgical training, in particular between resident and attending surgeons and these served as a basis of social and professional control. Judgement errors (choosing an incorrect treatment strategy) and technical errors (where the skills fall short of what is required) were typically forgiven, but remembered, on the premise the surgical training required ‘trial and error’ with minimal supervision. However, the error most likely cause concern for attendings was the ‘normative’, which related to personal behaviour (such as not going to see patients when asked, and squabbling with nursing and other staff rather than relating to technical skill as a surgeon). Unlike
judgement and technical errors these were not necessarily forgiven and served to indicate that the resident does not have the ‘right stuff’ to be a surgeon. If they had internalized the rules of proper behaviour, medical mishaps were generally ignored by other doctors. In this context, what surgeons regard as serious errors are breaches which result in a failure to “sustain orderly surgical activity” (1979, p.36), as opposed to mistakes occurring as a result of unintentionally deviating from written clinical guidelines.

1.3.8 Becker et al.’s (1961) study of the socialisation and acculturation processes of medical training described how first-hand clinical experience takes precedent over what might be termed ‘evidence based medicine’. Others have shown how in addition to the explicit and formal principles of bio-medical knowledge, medical practice is characterised by other socio-cultural and tacit norms, especially where expertise is uncertain (Fox 1957; Schon 1991). The tacit nature of medical knowledge and competence has been seen as enabling doctors to preserve key elements of the medical identity, namely autonomy and self-regulation (Hunter 1991; Fox 1992; Freidson, 1970).

1.3.9 Fox describes how this autonomy is bolstered by discursive strategies, which represent techniques of power. ‘Surgical power is not something which is just a given, but … it is something achieved by a social process. What is of interest …is the circularity of the process: because an actor is legitimated s/he can do certain activities such as surgery. The legitimacy also brings with it the power to define how we are to judge the outcome of these activities, an in turn the opportunity to make claims which serve to reproduce the legitimation’ (1992 p.131).

1.3.10 If, as Fox suggests, doctors have the power to make their own rules and resist definitions of success or rules constructed by outsiders, then this has important implications for the implementation of guidelines aimed at improving patient safety. Part of this process of legitimation is the telling of stories about the nature of medical work, which persuades non-doctors (patients and the public for example) of the legitimacy of the doctors’ claims. (We discuss these narratives in more detail in Chapter 3).

1.3.11 Attempts to impose written rules and to define non-compliance as either an error or a violation should not be viewed as merely an attempt to restructure the organisational environment or medical labour process through changing the way
tasks are performed. Rather than being perceived by doctors as a matter on which they can reach a compromise, instead such attempts are likely to be fiercely resisted since they require the transformation of professional identities.

### 1.4 Ethnographic research and ‘safety culture’ in the operating theatre

#### 1.4.1 For the purposes of this study we will use the following widely accepted definition of safety culture: ‘The safety culture of an organisation is the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation’s health and safety management. Organisations with a positive safety culture are characterised by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures (Advisory Committee on the Safety of Nuclear Installations 1993).

#### 1.4.2 This definition is not unproblematic. For example, the emphasis on shared perceptions and confidence may understate the importance of critical voices in encouraging reflection and consideration of ‘taken-for-granted’ assumptions with regard to the efficacy of preventive measures. It is not easy, for example, to distinguish this set of affairs from groupthink, defined by Irving Janis (1972) as “a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members’ strivings for unanimity override their motivation to realistically appraise alternative courses of action." Whilst groupthink, or a failure to question and criticise leads to undesirable outcomes, safety culture is assumed to achieve the opposite effect.

#### 1.4.3 Following the above definition of safety culture, researching culture will involve an investigation of values, beliefs, perceptions, patterns of behaviour and so on. Studies which examine safety culture using ethnographic methods in the operating theatre are sparse. Prior to commencing the current research we found no such studies from UK settings and only one US study which used ethnographic methods in this area (Andrews et al. 1997). However, this research focused largely on quantifying and classifying the nature of adverse events rather than providing detailed understanding of the values, beliefs and perceptions of those involved in the work of the operating theatre.
1.5 Summary

1.5.1 In summary, the position when we started the current research was one in which

- Concerns about patient safety were high on policy makers’ agendas
- Hospital operating theatres were acknowledged to be high risk environments
- Research evidence highlighted a range of factors which may predispose to error in operating theatres
- Safety policy placed great emphasis on designing safer systems, with the aim being to develop ‘high reliability’ organisations
- Safety policy highlighted the need to eradicate the ‘blame culture’ of NHS which is seen as a barrier to the understanding and management of clinical error
- Much emphasis had been placed on developing ‘safety cultures’, though progress in these areas had been slow.
- Ethnographic research examining safety culture in operating theatres was sparse.

1.5.2 Our research is an attempt to explore the individual and group values, attitudes, perceptions, competencies and patterns of behaviour of staff working in a hospital operating theatres department. What follows is divided into four chapters. Chapter 2 describes the study methods and setting and Chapter 3 presents the main study findings. Chapter 4 presents findings concerning a Patient Safety Training course for hospital staff and intended to foster a more safety conscious culture. The implications of the research are discussed in chapter 4.
2. Study setting and methods

2.1 Study setting and context

2.1.1 The setting for the study was the operating department of a large teaching hospital in the North of England. This site was chosen partly on the grounds that access could be negotiated, but also because members of staff at the hospital had been involved with the development a Patient Safety Training course which was to be offered to hospital staff.

2.1.2 The Commission for Health Improvement (CHI) conducted a clinical governance review at the Trust which was published early in 2002. This noted that there was little systematic learning about risks especially from clinical incident reports and raised some concerns regarding critical incident recording.

2.1.3 At the start of the research the existing Trust-wide system of risk management was being overhauled in an attempt to address the deficiencies identified. The major developments included the creation of a new communication and accountability infrastructure for incident reporting and risk management, the re-design of the incident reporting system and form, the enhancement of analytical procedures to conform with ‘root cause analysis’ and the introduction of Trust-wide induction and training programmes for incident reporting, root cause analysis and risk management in general.

2.2 Study methods – data collection

2.2.1 The term ‘ethnography’ refers both to research processes and to the presentation of the product of that research (Wolcott, 1995). With regard to ethnographic method, Hammersley (1990) acknowledges that there is ‘some disagreement about what count and do not count’ as examples of it, but suggests that ‘generally speaking’ such research has most of the following features:

(a) People’s behaviour is studied in everyday context, rather than experimental conditions....

(b) Data are gathered from a range of sources but observation and/or relatively informal conversations are usually the main ones.

(c) The approach to data collection is ‘unstructured’ in the sense that it does not involve following a detailed plan set up at the beginning; nor are the categories used
for interpreting what people say and do pre-given or fixed. This does not mean that the research is unsystematic; simply that initially the data are collected in as raw a form, and on as wide a front, as feasible.

(d) The focus is usually a single setting or group, of relatively small scale..
(e) The analysis of the data involves interpretation .. and mainly takes the form of verbal descriptions and explanations.‘

2.2.2 A central objective of ethnography is to understand both the social meaning given to objects, actions, and events and the way in which these meanings reflect, reiterate and renegotiate wider social discourses and cultures. Here meaning is not conceptualised as universal or static but it is seen as contextualised, negotiated and sustained within relative socio-cultural and historical settings. How people perceive, interpret and make sense of something is shaped by the norms, practices and knowledge(s) within which they engage.

2.2.3 By talking with individuals and studying social interaction, ethnographic research has the potential to explore how meanings relate and contribute to a given social setting. Furthermore, ethnography is concerned with understanding how meanings are ‘learned’, shared and can reinforce social cohesion and togetherness; or alternatively, represent a source of disunity and deviance. In the context of occupational and organisational work, a collective way of thinking and behaving is important for not only informing social practice but also for maintaining a sense of identity and meaning in work.

2.2.4 Since the research was aimed at exploring the individual and group values, attitudes, perceptions, competencies and patterns of behaviour of staff working in a hospital operating theatres department it was necessary to observe these members of staff within their milieu. One member of the research team was based within the operating theatres department of the hospital on a full-time basis for a period of eighteen months.

2.2.5 The researcher was given a desk within an office in the operating theatres department, but spent most of their time observing various aspects of the department’s work. These observations included areas such as staff rooms, management meetings, corridors, reception areas and various clinical settings, including the ten operating theatres with adjoining anaesthetic rooms and two recovery areas.
2.2.6 One of the concerns raised about ethnographic methods is the effect of the researcher’s presence on those within the research setting (the problem of ‘reactivity’) (Becker and Geer 1960). More recent commentators have suggested that rather than limiting reactivity by adopting an unobtrusive approach, the aim of the researcher should be to recognise and take account of their impact during their analysis. Members of the team were aware of the researcher’s role and presence. However, because the amount of time spent in the setting and the teaching nature of the hospital, which meant that observers were often present in the operating theatres department, it seems likely that hospital staff were not unduly conscious of the observer.

2.2.7 Furthermore, as the quotes from our interviews suggest, participants do not appear to have been inhibited by the presence of the observer, nor do they appear to have altered their behaviour as a result of the observer’s presence. Indeed when, some 12 months into the project, the field researcher was attempting to arrange for another member of the research team to be present in the operating theatre, some members of staff objected to this, expressing their discomfort at the proposal. The fact that they were very happy for the field researcher to continue to be present suggests that they had accepted his presence and may have come to think of him as an insider, unlike the additional researcher, whom they had never met, but of whom they were wary.

2.2.8 In addition to observation and informal exchanges and conversations, eighty formal interviews were conducted with a sample of staff members. In a small number of cases, staff who agreed to be interviewed were unhappy at being tape recorded and in these cases contemporaneous notes were made of the responses posed to the interviewer’s questions. In all other cases, the tape recordings of interviews were transcribed in full.

2.2.9 Since any researcher will interpret findings within a framework which reflects their own beliefs, values and experiences, it is important for the researcher to reflect on their experiences and interpretations of data in their field diary. The field researcher maintained a personal research diary in which they recorded their reflections on the process, asked themselves whether there might be alternative interpretations of the data as well as questioning the methodology being used for any inadequacies (the process of ‘reflexivity’) (Alvesson, 2000).
2.2.10 In addition, to the reflexive field diary, the field research also kept a detailed descriptive record of their observations, conversations and interpretations in the field. This was normally compiled contemporaneously with observations in hand written notebooks and included a mix of personal impressions, direct quotations, descriptions of individual or group work, diagrams, and checklists. In some settings it was not always possible to record observations, given the interpersonal or inappropriate context of the observation. In such instances notes were made at the first opportunity after leaving the setting.

2.2.11 At the end of each day, the field researcher would systematically review the observational records made during that day, ordering and re-writing them in electronic format. Reflections, interpretations and methodological decisions made during this process were also recorded in the personal research diary.

2.2.12 At the start of the research process a systems mapping exercise was undertaken to identify the constituent elements of the relevant systems for theatre-related activity. In addition, all protocols pertaining to the activities undertaken in theatre were collected prior to project commencement and were linked to the systems mapping data. This provided an understanding of the way in which the different parts of the system interconnected, or at least were intended to interconnect. Whilst subsequent observation was not intended merely to test concordance between planned and actual behaviours, this preliminary analysis did provide a useful frame of reference to guide the interpretation of observational data. Chapter 3 describes the key relationships between the operating theatre and its wider environment as well as outlining the threats to patient safety which arise when these relationships are disrupted.

2.2.13 Furthermore, since standardisation and protocols are seen as supporting safety culture (Hargreaves, 2003), an analysis of protocols helped inform subsequent observation and interviews regarding their status and by implication, the development (or otherwise) of a safety culture within the department.

2.2.14 During the first six months of the observation process (May – Sept. 2003), the researcher spent time arranging introductory meetings and attending meetings, as well as ‘hanging about’ in the departments on a daily basis to get ‘a feel of the place’. This included shadowing individual members from professional groups and spending
times in areas including changing rooms, staff rooms, training suites, anaesthetists’ rooms, theatres, recovery, sterile services, labs and the canteen.

2.2.15 During the following six months more focused observations of theatre activity and processes was undertaken. These were also guided by a focus on attempting to identify threats to safety and a General Failure Type / Red Flag framework was used to inform these observations where appropriate. (See Appendix A for an example). The intention here was to gain an understanding of the factors contributing to threats in the operating theatre in order to inform the wider ethnographic work which explored the way such events are interpreted by members of hospital staff.

2.2.16 The final series of observations (months thirteen onwards) were aimed at addressing particular questions or further investigating issues arising in months six to twelve.

2.3 Study methods - Data Analysis

2.3.1 The process of data analysis was an iterative one which involved reading and rereading field notes and interview transcripts (Becker, Geer, Hughes, and Strauss 1961). Data from observations and interviews was coded and cross referenced with documentary evidence and other data using Atlas Ti qualitative data analysis software. We adopted an analytical approach broadly consistent with grounded theory (Murphy et al 1998 pp141-3). Themes and questions that emerged in early interviews and observations were explored and tested in subsequent interviews and observations. Themes were compared and contrasted using the constant comparison method advocated by Glaser and Strauss (1967).

2.3.2 We were mindful of David Silverman’s comments that ‘Naive interviewers believe that the supposed limit of structural sociology are overcome by an open-ended interview schedule and a desire to catch ‘authentic’ experience. They fail to recognise what they do have in common with media interviewers (whose perennial question is ‘How do you/does it feel?’) and with tourists (who, in their search for ‘the authentic’ or different’, invariably end up with more of the same); they also totally fail to recognise the problematic analytic status of interview data which is never simply raw but is both situated and textual.’ (1989, p.218). Rather than seeking to act as ‘naive interviewers’ and taking accounts of interviewees at face value we considered
them in the context of our observational material and other factors, such as the status of the respondent (e.g. professional role as surgeon, nurse, manager and so on).

2.3.3 The multidisciplinary project team provided a sounding board outside of the study location for the receipt of findings at regular intervals. This allowed for consideration of the data by a wider group and created the opportunity to raise and consider alternative interpretations of data and assess emerging findings from a range of data sources.

2.3.4 Our reading of the transcripts and observational notes led us to interpret the data as a set of narratives being constructed for a particular purpose; in particular for their intended audience to perceive the narrative as authentic and legitimate (Jeffcutt, 1994) and to resist competing narratives which may challenge or unsettle existing identities and attachments. This is discussed in more detail in Chapter 3.

2.3.3 Our study was not intended to test prior hypotheses or theories, but instead aimed to generate theory from the data collected. However, we did focus some of our observations on a Patient Safety Training Course run by staff from the study hospital. Implicit in the running of this course is a theory that providing staff with training regarding patient safety will reduce threats to patient safety in the hospital setting. A more detailed account of the course and the findings from observational research on the course and its delivery are included at chapter 4 of this report.

2.3.4 We were unable to assess direct relationships between attendance at the course and changes to practice. However, we did conduct a quantitative analysis comparing attendees’ responses before and after attendance to a range of questions concerning relevant factors identified in the safety literature. These included team working, interdisciplinary relationships, communication and beliefs about error.

2.4 Study methods- a note on design

2.4.1 The study design posed a number of challenges. The first hurdle involved obtaining ethical approval. Although we intended to observe proceedings in the operating theatres we did not intend to seek informed consent from patients since informing them that operating theatres were high risk environments and that the research concerned threats to safety would be likely to raise their anxiety levels. After
some discussion with and advice from the Local Research Ethics Committee we were granted approval for this approach.

2.4.2 A further challenge concerned adverse events in the operating theatre and patient interviews with regard to these occurrences. Although we observed such events, in addition to near misses, often patients were unaware of these incidents. We took a decision not to interview patients since the focus of our research was staff behaviour and organisational processes and since for patients, many of whom had an ongoing relationship with the hospital, the process may raise anxieties and fears. Furthermore, since most patients were anaesthetised during their surgical procedures, the benefits of such interviews in terms of informing our study were uncertain.

2.4.3 Since it was important to maintain the goodwill of the hospital staff being observed and to minimise reactivity (see 2.2.6 above) we decided to not to focus on specific adverse events identified by the researchers as a basis for interviews and conversations. Rather than interrogating hospital staff about specific instances observed or reported, we asked them about their views and experiences in relation to error and safety more generally and wherever possible when specific examples were given these were pursued in more detailed questioning by the researcher.

2.4.4 Since we were concerned with interpretation and meaning, this approach also avoided imposing an external frame of reference on participants and encouraged them to speak about experiences from their perspective.

2.4.5 Our research employed observational methods to identify factors which predispose to error in the operating theatre. As part of the research process our intention was to identify methods of observation which users themselves should be able to institute to detect unsafe practices. In addition to informal ‘ethnography by hanging around’ observation, a series of structured observations were undertaken within the operating theatre. As part of this process, ‘red flags’ were identified and documented, together with any action taken as a result of these. This method of observation helped capture, as far as possible, immediate reactions to events and in many cases these were explored in subsequent conversations with staff involved. Overall the observational methods employed provided an insight into the way in which staff understood concepts such as ‘error’, ‘risk’ and safety’ and how they responded to warning signs in the operating theatre. However, there are a number of
limitations concerning these methods. For example, since the observer was a social
scientist and not a clinician, there was no opportunity to provide comment or
observation from a clinical perspective, beyond that of the immediate participants.
Furthermore, during the observations in the operating theatre, the extent of
immersion by the observer and the opportunities for asking questions was limited. In
terms of developing observational methods which would enable users to detect
unsafe practices (see Appendix A for an example of the observation schedule we
developed and applied), the fact that different groups of staff have different views
about what constitutes unsafe practice may prevent the application of our methods
by theatre staff. Further research which includes a clinical observer and/or a
participant observer (as opposed to a ‘fly-on-the-wall’ observer) may provide a further
insight into the handling of ‘unsafe’ practices in real time, as opposed to relying on
retrospective accounts from clinicians involved.
3. Safety and Complexity: Inter-Departmental Delays as a Threat to Patient Safety in the Operating Department

3.1 Introduction

3.1.1 This chapter reports on how interdepartmental relationships influence the work of the operating department and describes how these organisational factors threaten patient safety.

3.1.2 Ethnographic research attempts to understand the way in which people perceive, interpret and make sense of things, together with the way in which this sense making is shaped by the norms, practices and knowledge(s) within which they engage. Our research found that hospital managers perceived events and processes (e.g., risk, theatre timetabling, theatre processes) as something to be managed proactively, in a systematic fashion. (This is discussed in more detail in chapter 4).

3.1.3 Faith in formal rules and processes appear to be integral to the managerial identity. These identities are not influenced merely by events within the hospital, but should be understood as situated within a broader context. In other words, managers perceive their task as being to manage and solutions to perceived problems are conceptualised in terms of improving control by management.

3.1.4 Much current management thinking, largely assumes that a well functioning organisation is akin to a well oiled machine and treats each part of the machine as a discrete entity (Plsek and Wilson 2001). However, in what follows we show how the work of hospital operating department can be seen as part of a complex system where work in operating theatres is heavily dependent upon other hospital departments. This chapter outlines how the conceptualisation of the operating theatres department timetable as something to be managed by managers leads to unintended and dysfunctional consequences.

3.2 Data collection

3.2.1 In order to understand the relationship between the operating theatre and its wider environment a process mapping exercise, which identified flows between departments, was undertaken. Other data sources included documentary evidence such as policies and protocols, as well as observational and interview material.
3.2.2 Direct observations of surgical procedures comprised 20 scheduled theatre lists (25 elective cases) covering a range of elective surgical specialities (see figure 1), and lasting between 3 and 10 hours in length, with a mean time of 5.5 hours, and a total observation time of 109 hours.

3.2.3 Early on in the data collection process it became apparent that relationships between the operating theatre and other departments were subject to ‘breakdowns’, which disrupted the flow of work through the operating theatre. From our phase of focussed observation we collected data to catalogue the nature and frequency of ‘breakdowns’ in the inter-departmental working, to characterise their impact on the workings of the department staff and to assess the implications for patient safety.

Figure 1 Summary observed theatre lists by speciality and number of operations

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Number of Lists</th>
<th>Number of operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac-thoracic</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Eye</td>
<td>2</td>
<td>2 (+2 cancellations)</td>
</tr>
<tr>
<td>Gastro-intestinal/general</td>
<td>4</td>
<td>6 (+1 cancellation)</td>
</tr>
<tr>
<td>Urology</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Vascular</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Orthopaedic</td>
<td>2</td>
<td>2 (+1 cancellation)</td>
</tr>
<tr>
<td>ENT/Max-fac</td>
<td>2</td>
<td>2 (+1 cancellation)</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>25</td>
</tr>
</tbody>
</table>

3.3 Findings

3.3.1 The operating department as an ‘organisational hub’

3.3.1.1 The daily activities and procedures that we observed were broadly concerned with the planning, preparation and provision of the operating theatre ‘complex’ for the delivery of surgical care. These observations also indicated that the department’s capacity to carry out these tasks and support the delivery of surgical care was dependant upon the performance and integration of other hospital processes. In particular, this included interdepartmental communication, transfer and exchange of resources, services, information and skills within particular temporal and technical parameters. We therefore conceptualised the operating department as an ‘organisational hub’ with prominent interdepartmental relationships with the surgical wards and departments, the anaesthetic department, the sterile services department, the High Dependency Unit (HDU), and Histopathology, Radiography and Imaging.
Services (see Figure 2). Each of these provides an essential ingredient in the proper and safe working of the operating department (see figure 3).

**Figure 2** The Organisational context of the Operating Department

![Organisational context of the Operating Department](image)

**Figure 3** Inter-Departmental Relationships around the Operating Department

<table>
<thead>
<tr>
<th>Department</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical Wards</td>
<td>The transfer of the patient both pre- and post-operatively</td>
</tr>
<tr>
<td>Sterile Service</td>
<td>Supply of sterile Instrumentation and Equipment</td>
</tr>
<tr>
<td>Histopathology and Laboratory Services</td>
<td>Histopathology results; Blood services</td>
</tr>
<tr>
<td>Radiography and Imaging Services</td>
<td>Imaging information</td>
</tr>
<tr>
<td>High Dependency Unit</td>
<td>Intensive post-operative care</td>
</tr>
</tbody>
</table>

3.3.1.2 For elective surgery, the work of the operating department was normally planned and guided by a designated theatre schedule (the list of daily surgical procedures over a one-week period). We observed that this list was developed and finalised at a weekly meeting between `theatre`, `surgical` and `anaesthetic` representatives. At this meeting the forthcoming surgical list for each consultant would be presented, including information about the patient and the procedure,
thereby enabling the anaesthetic and operating department representatives to establish their own necessary work arrangements for these cases, such as staffing levels or resource requirements, and also to raise concerns regarding the surgical lists. A significant issue for the operating department managers and administrators was to ensure the appropriate and coordinated supply of departmental and inter-departmental resources and services for each scheduled surgical procedures, such as the need for blood products or specialist devices. A common issue raised by the theatre representatives was the need to re-arrange the list or order of patients given known resource limitations or problems, such as the supply or availability of surgical instrumentation.

3.3.2 Inter-departmental breakdowns and delays

3.3.2.1 We found that delays in inter-departmental flows were one of the most common factors influencing the workings of the operating department. Its dependence on the timely co-ordination and integration of these other hospital departments meant that a delay in one or two exchanges of goods or services could bring the provision of surgical care in the operating theatre to a complete halt, or introduce considerable pressure or constraint in individual and group performance. From our intensive phase of observations we were able to establish the approximate frequency with which these inter-departmental delays occurred.

3.3.2.2 We found that the operating department’s relationship with the surgical wards was the most consistent source of delay. 17 of the 25 patients we observed experienced delays of between 5 and 20 minutes in their transfer between the ward and the operating department, based upon the scheduled start time for the procedure. Delays over 10 minutes (6/25 patients) significantly influenced the work of departmental staff, through requiring that they ‘make-up’ lost time by hurrying tasks. The collection of postoperative patients and their return to the ward was also found to incur frequent delays, with 5 of the 25 cases being delayed in excess of 15 minutes, leading to the blocking of recovery beds and limiting the smooth flow of patients through the operating department.

3.3.2.3 Another inter-departmental factor that interfered with the workings of the operating department was the provision of HDU beds. For patients needing intensive post-operative care, the operating department was required to request and secure an HDU bed prior to commencing the surgical procedure. Although these were often
reserved several hours or days in advance of the procedure, 11 of the 20 theatre lists observed were delayed by between 10 and 40 minutes because this bed could not be guaranteed. Again this postponed the start time of the operation, causing delays in the start of the procedure and in turn modifying the overall running of the scheduled theatre list. The time in which these delays were most common was early in the morning, especially on Monday as the HDU dealt with weekend emergencies.

3.3.2.4 We also observed that the relationship with Sterile Services could affect the workings of the operating department. The request for and provision of surgical instrumentation was informed by the scheduled theatre list, and involved the physical transportation of instrument ‘trays’ between departments in advance of a procedure scheduled start to enable nursing staff to make the necessary checks and preparations. However, we found that 6 of the 25 scheduled procedures were delayed because of the late or incorrect provision of this equipment. These delays rarely occurred in the mornings as Sterile Service was able to clean and prepare equipment ‘out of hours’, but this department struggled to turn-around instruments within a short time period between procedures. In most cases these delays were under 10 minutes and had a small impact on the department, but longer periods significantly pressurised the work of nursing staff to complete necessary checks and preparations. Furthermore, the incorrect supply of equipment or faulty equipment, observed on two occasions, significantly influenced the work of the department as additional resources had to be ordered and delivered.

3.3.2.5 We observed that the relationships with Histopathology and Radiographic services also had the potential to undermine the workings of the operating theatre, although to a lesser extent. Disruptions mainly involved delays or miscommunications in information supplied to the department and needed to inform anaesthetic and surgical decision-making during or immediately prior to the start of an operation. From our observations of anaesthetic work we found that four out of 20 cases were delayed whilst waiting for the delivery of pathology test results, and on a small number of occasions X-rays and other scans were late arriving to the department, thus delaying surgical activity. In most cases it appeared that the tests and X-Rays in question were generated by last minute requests for information by medical staff.
3.3.3 The impact on the operating department

3.3.3.1 Many of the delayed inter-departmental exchanges were small and had little impact upon the overall workings of the operating theatre. Typically these introduced slight adjustments in the start and finish times of the surgical procedures. Our observations indicated that the operating department had adapted to cope with such instances. For example, in one observation we recorded how the delayed availability of an HDU bed gave the anaesthetist extra time to acquire additional test results. On several occasions the delayed arrival of a patient from the surgical ward gave the theatre staff additional time to cope with the late collection of other patients. Staff also used delays to take missed breaks or to talk with colleagues. We found therefore that in both organisational and cultural terms the operating department had come to expect, tolerate and work with many of these inter-departmental delays. We also found that the expectation and acceptance of these delays has a perverse effect of further delaying proceedings as staff, especially surgeons, often arrived late to theatre, assuming that the scheduled start time would be delayed.

3.3.3.2 We observed, however, that longer and multiple delays had a negative impact on the operating department and provision of surgical care. Specifically, when delays were over 20 minutes or followed one another in rapid succession, work in the operating department was characterised by high degrees of time constraint, change and uncertainty. In turn these modified and in some cases negatively influenced the individual and inter-personal working of staff.

3.3.3.3 These delays generally resulted in staff working more quickly with the intention of making up ‘lost time’ and attempting to return the running order and flow of the theatre to that scheduled on the theatre list. This could be seen with all staff groups increasing the pace at which they worked. For nursing staff this was most evident in the pre-surgical preparation of the operating theatre environment and the checking of surgical instrumentation. For the anaesthetic staff there was greater time pressure to complete fully prepare and anaesthetise the patient. For the surgeon, the most commonly recorded impact was the desire to ‘close’ and finish procedures rapidly.

3.3.3.4 For those delays and inter-departmental breakdowns that lasted over 30 minutes the pressure to work faster was replaced with the assumption that the scheduled theatre list and order of patients should be changed. Often this would
involve switching the order of patients, especially if an HDU bed was unavailable, the patient was not ready for their transfer from the ward or instruments were missing. However, last minute changes to the list, whilst minimising lost theatre time, also introduced a range of additional pressures; for example, specialist surgical instruments might not be available or prepared, the patient’s records and test results might not be available or the anaesthetist would not be prepared.

3.3.3.5 These last minute changes often created their own problems as the wider inter-departmental relations and networks of supply were not geared up to these changes, further exacerbating the delays, time constraints and the uncertainty of work. Ultimately it was uncertainty that characterised the work of the operating department during these times. All staff members became anxious and to varying degrees confused about what they should be doing, and how they should respond to these unfolding circumstances. Decisions made by one staff group, for example changes to the theatre list initiated by surgeons, would make the work of the others variable and uncertain, with individuals often commenting that they were unsure about what task they should be performing.

3.3.3.6 These constraints, changes and uncertainties had a clearly visible impact on the individual and group work of the operating department and introduced influences and factors that have been shown to shape safety at work. In particular, individuals would become anxious, irritable and erratic; communication between group members would be fragmented, confrontational and incomplete; and the normal routines and checks would sometimes be omitted or cut short. Common examples included surgical staff shouting at nursing staff for ‘holding up’ proceedings; requests for information or equipment would become imprecise and rushed leading to further uncertainty; read-back during instrumentation checking would be missed; swab checks could be incomplete; and aseptic procedures would be violated to speed up work.

3.4 Conclusions
3.4.1 The work of hospital operating department can be seen as part of a complex system where work in operating theatres is heavily dependent upon other hospital departments. However, the theatre timetabling process fails to take account of the wider relationships which impact on performance. This reflects much current management thinking, which largely assumes that a well functioning organisation is akin to a well oiled machine and treats each part of the machine as a discrete entity.
This tendency to consider each part in isolation means that delays in the communication and exchange of services between hospital departments, which can significantly alter the schedule and effective working of the operating department, are not taken into account in the timetabling process. Beyond a certain level of delay, normal functioning is not regained within the operating session and the cumulative effect of these changes and delays exacerbates this potential for rapid change and leads to increased departmental uncertainty and risk.

3.4.2 Amongst doctors, the anticipation of delay resulted in staff arriving late at theatre to avoid wasting time, with the result that on these occasions further delays were experienced, which increased pressure on theatre staff. Since managers are aware that doctors arrive late, amongst theatre managers, the response was to collect data on planned versus actual start and finish times and to display these in the operating theatres department, in an effort to encourage staff to reduce the variance between planned and actual timetables. Meanwhile, the timetabling proceeds without any allowance for delays and with little or no effort to address other factors contributing to delays. Instead, more effort has been expended on developing a newer electronic timetabling system to replace the older system.

3.4.3 The picture of the operating theatres environment emerging from our data was as a place where teams struggled to deliver services under difficult circumstances. Team work, in this context, appeared to be interpreted as a process of speeding up working practices in response to time pressures. However, what this means is that members of staff are unlikely to deviate from or voice objections to, the pursuit of this common purpose, even though this increases threats to safety in the operating theatre.

3.4.4 Whilst it may be difficult to influence these group norms about what constitutes appropriate behaviour, there are other actions which can be taken more immediately to reduce threats to safety. In particular, our data highlight that workload planning and theatre timetabling must be informed by an appreciation of wider systems factors, as opposed to focusing on discrete elements and simply monitoring the actual versus planned time taken to complete operations.
4. Study Findings

4.1 Introduction – Safety culture and professional identity narratives

4.1.1 This chapter presents study findings which raise important questions about the relevance of the concept ‘safety culture’ in the context of hospital operating theatre departments. Findings relating to the evaluation of a patient safety training course run by members of staff at the hospital are contained in Chapter 4.

4.1.2 From our interviews and observations it became clear that different groups of staff (doctors, managers and nurses) held different views about safety, protocols, error and risk. Support for standardisation and the use of protocols appeared to bolster managerial identities and amongst nursing staff protocol adherence appeared to be a key component of professional identity. In contrast, such developments appeared to threaten the medical identity. The responses of study participants can be seen as identity narratives intended to persuade others of their legitimacy and to resist competing narratives intended to challenge or unsettle existing identities and attachments.

4.1.3 Our study highlights the way in which each group, managers and doctors, uses narratives to present accounts which claim legitimacy, as part of a struggle to advance their professional interests and to preserve the identities to which each aspires. Our aim was not to assess the competing claims incorporated into managerial and medical narratives with regard to patient safety and rule based solutions. Rather we attempted to explore the extent to which these different identity narratives were compatible with the development of a safety culture founded on mutual trust, shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures.

4.1.4 Describing narratives as attempts to persuade and resist is not to say that group members are being disingenuous or deliberately deceitful when presenting their accounts. For example, the doctors in our study suggested that protocols were insufficiently flexible in an environment where each patient is different. It seems likely that doctors’ rejections of the ability to generalise and their scepticism of the benefits of judging other doctors (for example, by reporting violations or errors) is deeply felt. Indeed, these behaviours appear to stem from the unwritten rules to which doctors
conform and represent part of what it means to be a doctor. Similarly, faith in formal rules and processes appear to be integral to the managerial identity.

4.1.5 These identities are not influenced merely by events within the hospital, but should be understood as situated within a broader context. Viewing personal narrative as part of a larger system of activities highlights the fact that, in order for identities to be viable, we must tell stories which "fit" the larger system of which we are a part. This also means that the power and authority governing one's likelihood of authoring a certain type of story is not confined to the site of the teller but is variously dispersed.

4.1.6 Our study focuses on doctors, nurses and managers within the same hospital, but by considering identity narratives as inseparable from the system of social practices which constitute them, we are also able to consider the influence of unwritten rules, which have a wider application beyond the organization, on the identity narratives people author. These help explain why people who may never meet each other, but belong to the same group (e.g. doctors – whether they are in this hospital or another one many miles away) exhibit a shared identity-narrative. For example, one of the first rules that doctors learn is never to generalize (Hunter, 1991). Doctors may, therefore, perceive clinical guidelines, based, as they are, entirely on generalisations, as something alien to the practice of medicine. But more importantly, a policy to implement the use of clinical guidelines and to define non-compliance as either an error or a violation is not merely a matter on which doctors can reach a compromise or agree to disagree with managers, since they may perceive it as an assault on their identity.

4.1.7 Furthermore, the fact that doctors command greater popular support and enjoy much higher levels of trust amongst the general public (MORI, 2003) than do hospital ‘bureaucrats’ contributes to their ability to resist challenges to their autonomy. This, along with other factors which contribute to the power differentials between managers and doctors, for example, means that identity-narratives authored by medical professionals are likely to command greater legitimacy than those of managers.

4.1.8 This means, however, that the emergence of narrative confluence (Currie and Brown, 2003) is a remote prospect, since this would require doctors and managers to modify their identity-narratives in order to reach agreement and by implication, accept
modifications to their identities. The unwritten rules of medical practice suggest that doctors whose practice is closely governed by guidelines or who comment critically on the work of other medical professionals will no longer be regarded as doctors, since autonomy and a refusal to judge others are key elements of the medical identity (Hunter, 1991).

4.1.9 To talk of ‘a’ blame culture or ‘a’ safety culture ignores the existence of different norms, values and attitudes amongst the different staff groups we observed. It may make more sense to talk of different identities and the different attitudes to risk, blame and error associated with these. In what follows we present a more detailed discussion of the findings which led us to this conclusion.

4.2 Safety culture

4.2.1 Organisations with a positive safety culture are seen as being characterised by ‘communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures’ (Advisory Committee on the Safety of Nuclear Installations 1993). Our study found that whilst all staff agreed on the importance of safety in principle, a shared perception on what constitutes safe practice was lacking. Indeed, different groups of staff held different beliefs about adverse events, risk and error reporting.

4.2.2 In addition, confidence in the efficacy of preventive measures varied between different groups of staff. In particular, doctors’ views with regard to these matters differed markedly from those of managers and nurses.

4.2.3 Furthermore, the emphasis within current safety orthodoxy on rules and standardisation, in a context where beliefs about the value of such approaches differ between groups of staff, rather than promoting ‘communications founded on mutual trust’ appears to contribute adversely to the development of trusting relationships between doctors and other groups of staff.

These findings are discussed in more detail overleaf.
4.3 The nature of work in the operating theatre - the medical perspective

4.3.1 Doctors portrayed their work as a process of undertaking a complex job in difficult and uncertain circumstances. Being able to react ‘on the hoof’ was seen as a necessary requirement of the profession and doctors repeatedly referred to having to tailor treatments to individual patients. Work in operating theatres (both surgery and anaesthesia) was portrayed as dynamic and uncertain.

As a cardiac surgeon you tell the juniors.....every operation is just slightly different from another’ and you should try to anticipate trouble and to avoid it. If you are doing something you need to be thinking ‘what is the next step?, what am I going to do now?, what are the potential problems?’ so you try to anticipate complications [CONSULTANT SURGEON 40]

we tend to have a lot of agency staff, you do get to know them but if people are on short term secondments it can be difficult and it becomes more stressful and then you get into the situation where several things happen, you have got a difficult patient you have got other time factors maybe and then on top of that you don’t know the person who is working with you, you can see how things build up. Anaesthetics is a complex subject [CONSULTANT ANAESTHETIST 23]

4.3.2 Despite the emphasis on the unpredictable and non-routine nature of work in the operating theatre, at the same time, the importance of routine was stressed. The development of an individualised routine appeared to be a key component of the medical identity. Over time, experienced doctors develop individual routines, but rather than representing a shared routine, each doctor appears to have developed their own way of working, with the routine being specific to a particular doctor.

the ultimate scrub nurse and there is only one that I have ever come across, where I can perform virtually the whole operation without saying a word … with this particular scrub nurse if I put my hand out she has got the right thing ….we all have our different styles and ways of working, but one thing that will upset a surgeon is if a scrub nurse mistakes you for one of your colleagues and gives you the wrong stuff that I don’t use, but he uses, they have got to be able to distinguish between us and that may take some time and I always think ‘just sit down and write it all down, take some time’ [40 CONSULTANT SURGEON]
4.3.3 If each doctor has their own routine and deviations from this provoke different responses and courses of action in different doctors, then this has implications for policy solutions based on protocols and guidelines which suggest ‘one best way’ of carrying out particular processes.

4.4 Rules and guidelines – the medical perspective

4.4.1 There is general agreement in current policy and research literatures that aiming for an error free environment is unrealistic. The response to the propensity of humans to err has been an emphasis on designing safer systems, engineering ‘high reliability’ organisations and protocol driven care to reduce the extent of individual discretion. However, from the doctors’ perspective, a hallmark of being a skilled doctor appeared to be the ability to practice without recourse to guidelines or protocols.

*Experience in medicine is just like train spotting, you recognise patterns and you know what these patterns are.... I don’t have to assess every patient according to a flow chart where if X meets Y I operate ...you do reach a stage where you don’t have to have everything written down... It might sound terribly uncritical but you just make decisions without actually having to refer to a written protocol...you just know what to do [69 CONSULTANT SURGEON]*

4.4.2 Doctors’ behaviours reflected the accumulation of many years of experience and the development of routines which had, to some extent, become almost instinctive. In addition, doctors’ responses to complex cases or non-routine events, appeared to be based on what one surgeon described as ‘a combination of experience, education and just common sense really, you think this might work and then you do it’ as a means of ‘being able to get myself out of trouble if I get into it’, rather than on any protocol.

*When I make a decision, I have no idea how I do it, more often than not it just comes to me that such and such a thing is the right thing to do [CONSULTANT SURGEON, 47]*
4.4.3 Medical staff supported the use of guidelines for more junior staff who were still in the process of developing their skills and knowledge base. However, experienced professionals are viewed as not needing to resort to guidelines.

*I think [a guideline] is quite good for the trainees I think it does help for more junior anaesthetists dealing with certain problems regarding different procedures…… but I think that what happens with consultants unlike trainees is that they establish a fixed pattern of work … and it is easier and safer because of that.* [CONSULTANT ANAESTHETIST, 15]

4.4.4 Doctors also defended their unwillingness to follow guidelines by depicting them as potentially leading to poorer outcomes and stifling innovation.

*There are guidelines for care but it’s perfectly legitimate to depart from them where there are justifiable reasons. So it may well be that what is regarded as a departure from a guideline today, may be a trigger for incorporating something into the guideline tomorrow.* [CONSULTANT SURGEON 02]

*they could be more dangerous … people may not think for themselves, they don’t make good decisions, and prior to the protocol being introduced they may well have thought about things in more detail.* [CONSULTANT ANAESTHETIST 16]

4.5 The nature of work in the operating theatre - the nurses’ perspective

Nurses’ views suggested a faith in evidence and order, displaying little acknowledgement of uncertainty and individual variation. In contrast to doctors, nurses emphasised the importance of the universal over the local, with standardised approaches seen as the best way of ensuring patient safety. Unlike doctors, nurses placed little emphasis on flexibility or initiative, preferring instead to focus on following checklists and written protocols as a means of maintaining a safe environment. Whilst doctors saw an ability to practice without guidelines as a key attribute of a competent medical professional, professionalism amongst nurses was synonymous with being aware of and adhering to written protocols.
4.6 Rules and guidelines - the nurses’ perspective

4.6.1 Nurses placed great emphasis on the use of checklists and written policies and processes, stressing the requirement to sign policies in order to provide written evidence of having read them.

we have a file in which we have all the policies, everything, so we go through it....if there is any change in that policy, every month we have an audit day and so they tell us that the policy is changing and everything and they then put a new copy into each theatre and then we have to read it, that is compulsory that we have to read that and we have to sign to say that we have done that [71 NURSE]

4.6.2 Much less emphasis was placed on outcomes and we observed occasions where nurses appeared to value following protocols for their own sake, rather than as a means to good outcomes. In one session, for example, the circulating nurse had little opportunity during the operation to record the necessary information on swabs, blades and needles on the theatre whiteboard. Adherence to this guideline is intended to prevent items of equipment being left inside the patient after the operation. However, after the operation had finished the nurse then recorded all the used items on the whiteboard and then immediately wiped this off. This and other examples highlighted the potential for guideline compliance to become an end in itself, with some members of staff losing sight of the overall aim of the guidelines, or at least displaying an unquestioning acceptance of their contents.

4.6.3 There were, however, differences of emphasis between nurses at different hierarchical levels. Scrub nurses tended to focus on their individual role in following protocols, emphasising having learned both to follow the procedures and demonstrate that they had done so. More senior nurses stressed the need to have processes and systems in place to prevent adverse events. A heavy emphasis was placed on protocol knowledge and implementation as part of the process of induction for new staff and of ongoing learning and updating for existing staff. Although senior nurses also stressed that it was not sufficient simply to read new policies; nursing staff were also required to enter their signature to indicate that they have read these policies.

Each senior person in theatre should know these policies and they should be encouraging people to abide by them and checking to make sure that people are
following them.. each individual has to sign that they have read it and date it

[NURSE MANAGER, 04]

4.6.4 The process of providing a signature might accentuate individual responsibility, but it may also serve to establish certain areas of activity as being beyond the remit of nursing staff, since if these relate to work undertaken by medical staff, they are not governed by protocols. The lack of a shared sense of responsibility for work primarily undertaken by other members of the theatre team (doctors in particular) avoids the potential for nurses to be placed in the uncomfortable situation of questioning doctors’ behaviours, although the encouragement of such questioning, where nurses do have concerns, may lead to a safer working environment.

4.6.5 Whilst there was an implicit assumption amongst more junior nursing staff that protocols would reduce the likelihood that they would commit an error, more senior nursing staff were more likely to make explicit links between protocols and evidence and the prevention of errors more generally. This reflects the role played by nurse managers in constructing protocols and ensuring that other nursing staff are aware of them, but it also reflects the role of these nurses as managers responsible for maintaining order and facilitating the smooth running of the operating theatres environment. Indeed, government policy documents emphasise the need to systematise processes and help construct the identity of the good manager, to which all managers are encouraged to aspire. However, the smooth operation of theatres is heavily influenced by the behaviours of medical staff over whom nurse managers have little control, so that guidelines can be seen as providing a legitimate means by which nurse managers can challenge doctors’ actions.

4.6.6 Since nurses viewed protocol adherence as a key component of professional identity, they tended to view doctors’ non-compliance with protocols as unprofessional and at times putting patients at risk.

it is probably the nature of the surgeons’ work that he has to be very focused on himself and his patient, but it stops him actually seeing the bigger picture, that is my feeling.......they ignore what is going on around them [70 NURSE MANAGER]

Cavalier surgeons.... we wear masks and hats and everything ... he just waltzes into theatre with his white coat on, which he’s been on the wards with, and you
know you’ve got things like MRSA, and he just waltzes into theatre, no hat on, and in his outside gear, and his shoes, and he starts talking. … it’s ignoring the protocol, but some people don’t think it applies to them and the surgeons are the worst….wanting to use bits of equipment they have invented themselves [4 NURSE MANAGER]

4.6.7 These quotes suggest that nurse managers perceive medical autonomy as a threat to trust. Since nurse managers are concerned with maintaining order they appear to be concerned with adherence to written rules (e.g. guidelines) which keep ‘cavalier’ doctors in check and to unwritten rules of what they see as behaviour which is conducive to maintaining order (e.g. honesty, open communication and an acknowledgement of the importance of other team members).

4.6.8 More junior nurses were less openly critical of medical staff. Whilst they acknowledged that they would be willing to highlight deficiencies relating to equipment or obtaining consent (which are related to their immediate area of responsibility) they were less likely to voice concerns if they observed doctors practising in ways which they regarded as less than optimal. On several occasions fear was cited as the reason why nurses did not raise concerns. However, amongst more junior nurses the view was also expressed that such behaviour was not appropriate since it would disrupt accepted norms. Nurses appeared to see their role as subordinate to and responding to or anticipating surgeon requirements, rather than being in a position to challenge doctors as fellow professionals. As one scrub nurse commented clinical practice which is less than optimal is observed ‘but you don’t say it though…. I pass instruments and make sure I am giving the surgeon the right things. You have to think ahead for them because you often know what they are going to ask for next, you have to be ready for it’ [NURSE 39].

4.6.9 For more junior nurses, a related concern appears to be the need to gain and maintain acceptance and trust amongst the medical team and challenging medical practice is unlikely to further this goal. Since the written protocols which these nurses follow contain no reference to any requirement to speak out if they have concerns, scrub nurses can follow the unwritten rules of theatre etiquette without infringing the formal rules which, their training and nursing practice teaches, are the hallmarks of a professional.
4.7 Conceptualisation of error and adverse events

Much attention in current and previous research has been focused on exploring the reasons why members of staff fail to report errors. However, our study suggests that there is no shared agreement across all staff regarding what constitutes risky or safe practice, with different groups of staff conceptualising error in different ways.

4.7.1 Managers and nurses

4.7.1.1 Managers and nurses conceptualised adverse events as largely preventable. Both groups of staff were supportive of guidelines, rules and planning processes. Managers appear to view their role as being engaged in the difficult, but important task of trying to persuade doctors to behave themselves or developing policies and procedures that would direct medical work. Their construction of the work of operating theatres was as places and activities which were amenable to codification, planning and control. Their emphasis on guidelines downplayed the importance of individuals (in contrast to the focus on doctors’ roles in medical accounts), emphasising the need to get the processes (which are the province of good managers) right.

4.7.1.2 In common with nurses, this faith in ‘rational’, ‘scientific’ processes appeared, at times, to result in managers seeing processes as ends in themselves. For example, managers revered their computerised theatre scheduling system which had replaced the old paper system. Through this system the theatre managers and administrators were able to gather together the surgical operating lists, including patient and procedural information, from each of surgical departments. A week in advance of the planned list a management meeting in theatres was used to review the planned timetable in order to make the necessary technical provisions for the planned operations and to question and clarify the working arrangements proposed by the surgical staff and the availability of the anaesthetists. This information would then be updated on the computer systems and circulated in advance of the next day’s operating list.

4.7.1.3 Due to its perceived (by managers) crucial role in the maintenance of order, only a small number of managers have access to the system. As one manager explained ‘There’s not many people who can change because you could get in trouble… a lot of people rely on this. To us in theatres is to plan right.’ Despite the
meticulous planning, we observed that there were many factors that could interfere with the smooth running of the theatre list, e.g. delays and staff shortages, which were systematically recorded on this system by the theatre managers. These were then reviewed the following week to identify the underlying causes and the results were printed out and affixed to the wall for theatres staff to read. Although these printouts frequently claimed that delays were caused by tardy surgical or anaesthetic staff, the doctors tended to ignore them entirely and no action resulted from this process. When pressed as to what the system had changed, one manager provided the following justification:

_it is just very very useful to use.... The problem is sometimes that you collect a lot of data and you don't have time to interpret it .... I think it has helped with the planning and the organisation.. but ... I don't think it is massively different because you have still got the problem of lack of anaesthetists which isn't going to go away, but I do think the organisation is better. I think what we are doing now .....looking at why people are late and looking at the long lists that are happening and the problems we are having with the staff and the equipment and everything like that, I am sure that is all being documented and that goes back to the relevant people and all helps the system_ (MANAGER 45)

4.7.1.4 This quote suggests that a huge effort is spent for rather uncertain outcomes. The managers may be the guardians of the ‘important system’, but at the end of the day they are powerless to control what happens in theatres. Their attachment to the system may be because it provides them with a sense of purpose and order, which as managers they see it as their role to provide, when all around them is uncertain, random and beyond their control.

4.7.1.5 The planning process also fails to consider the impact of other departments on the operating theatre timetable. This means that theatre timetables are often based on ideal, as opposed to ‘real world’ contexts and constraints. These timetables threaten patient safety by requiring staff to respond rapidly to delays, to break with established routines and guidelines and work with increased time and emotional pressures. This means that staff may focus on working quickly, as opposed to working safely, and may be disinclined to raise objections which threaten this goal.
4.7.1.6 Questioning managers on the improvements generated by the system produces a defensive explanation and tentative or vague claims ('I think it has helped') as to the system’s and (by implication) their value. Amongst some managers directly concerned with the planning and management of operating theatres management, views were more uncertain and ambiguous than those of the doctors. This may reflect the fact that whilst managers advocate the use of formal rules and procedures, they also acknowledged (sometimes grudgingly) that resource constraints (e.g. a lack of up-to-date equipment, staff shortages) made the implementation of guidelines impractical, if not impossible. This means that even when they do manage to put in place procedures to prevent doctors from overriding their authority, they do not appear to be comfortable with state of affairs either.

I’m the one who says ‘you can’t have’, but for the staff, they know they are working with sub-standard equipment….. we are all under pressure to keep our budget in line and so, …. that’s when it starts to get nasty because the surgeon will come to me and I will say no …… and they will argue it. It’s this constant bat and ball, and this new protocol should stop that….. no order will be authorised without my signature…. So it’s going to make me even more popular.

[MANAGER, 11]

They have a target to keep the waiting times below a certain time….. What we usually do is do some extra additional sessions that might be in the week or more likely to be on a Saturday…. it probably does make people tired… but then again they get more money [MANAGER, 12]

4.7.2 Medical staff

4.7.2.1 This faith in systems to maintain order and manage risk was not shared by medical staff. Although doctors did not necessarily treat such matters lightly, there appeared to be resistance to the idea of managing risk and an acceptance that errors were inevitable, rather than something to be prevented by designing safer systems.

an adverse event happened during the operation, it did not go as well as I wanted and it took me a long time…. I felt I had known exactly what was going on and I still didn’t get it right  [SURGEON 48]
surgeons are human beings and they have good days and bad days and they are on form or not on form, they are distracted or not distracted by the curvature of the scrub nurses legs or by the row they got from their wife in the morning, they are just normal human beings and that variation of performance within an individual I would say is a major part of the risk element here" [CONSULTANT SURGEON 63]

4.7.2.2 If doctors view lapses in practice as inevitable, but protocols as not applicable to skilled professional, then they are unlikely to see the value of systems which attempt to manage these risks. In fact they may not perceive the potential adverse events as risks at all, but instead as inevitable occupational hazards. Similarly, whilst the notion of risk implies blame, such lapses since they are not risks (as conceptualised by risk management orthodoxy) but mere bad luck, are not associated with blame, by medical staff. This may explain why doctors are much more willing than the nurses in our study to talk about specific errors in their own practice.

4.7.2.3 Doctors were also willing to work under circumstances which were likely to increase risks to patients, even though they complained in interviews about this, since they viewed their role as one of coping in such adverse circumstances.

'well, ideally we could do with a size three laryngeal mask but a size four will do and it does, but, it shouldn't be like that, the patient doesn't come to any harm, but statistically speaking, one day the patient will come to harm because we have done that' [CONSULTANT ANAESTHETIST, 22]

4.7.2.4 Doctors were unconvinced of the value of recent developments, some of which were ostensibly intended to reduce errors in hospital. In some cases they were suspicious of the motivation behind these developments and speculated that these may increase risk.

"I think the junior doctor hours is a big threat [to safety] actually and twenty four hour shift work because it removes their responsibility for a full twenty four hour period to much shorter slots of time and so it means that the danger is that they view their time in hours rather than a total of patient care, so they think 'my shift
ends in five minutes time’ which is not a very good attitude really [CONSULTANT ANAESTHETIST, 17]

the new contract…is also going to create more of that disillusionment within the profession ……we never used to have doctors complain about the amount of time they spent working….you started a job and you finished it and ……now doctors are starting to feel like workmen, they just come in 9.00am until 5.00pm and any extra work is resented… I find that sentiment upsetting really because I think that it should be a vocation [CONSULTANT SURGEON, 54]

everyone is supposed to follow these NICE [National Institute for Clinical Excellence] guidelines, for instance if you are putting a central line in you are supposed to use an ultrasound probe so that you can detect the vein and know where to stick your needle, especially if it is for elective surgery, that has been written down, but in fact I don’t do that……I still use an anatomical landmark method that I have been using forever and usually it works………… you feel in some ways that your clinical experience in being undermined by bureaucracy….. there are many occasions where I have driven the wrong way down a one-way street and I just feel at the gut level I did the safest thing….. we have all sorts of protocols now and I have criticised trainees for being too adherent to protocols, there was a women recently who needed to get to [names another hospital] for neuro-surgery from here… and there was one little piece of equipment that wasn’t available and by rights when you transfer patients you need this piece of kit that detects carbon dioxide coming out of the patient, but for Christ sake she had an expanding blood clot in her brain which needed to come out, so fannying around here for one to two hours trying to get this one piece of equipment caused a problem, sometimes people get blinded to the bigger picture, I would have just not bothered with that and sent her over there anyway, breaking the rules for the sake of the patient [CONSULTANT ANAESTHETIST 35]

It is just more of a planning system to eliminate any margin of fat on the skeleton of the NHS really. For twelve years my list has been going to theatre the night before and it has been ready and set up the next day…. Well the prospect of some poor exhausted nurse having an hour when she is not doing anything rather than working her knuckles to the ground are just untenable, we can’t have that (laughs) [CONSULTANT SURGEON 27]
4.8 Blame and error reporting

4.8.1 A revised error reporting system was introduced during the period of the study. This appeared to raise awareness of the issue of errors in general and the requirement to report errors in particular. Members of staff made reference to the system and were aware of the requirement, although there is no evidence to suggest that this increased error reporting.

4.8.2 Hospital staff referred to fear of being blamed as a disincentive for reporting errors. However, there are other factors which influence the extent to which errors are reported.

4.8.3 Whilst managers and nurses supported attempts to increase error reporting and learning from adverse events, doctors were less enthusiastic on this issue. Many doctors saw little benefit to be gained from this process. This in part reflects a perception that feedback from reports submitted was poor. However, a further more fundamental problem was that many doctors appeared to be unconvinced by the idea that it is possible to learn from other people’s mistakes.

4.8.4 If each doctor develops their own routine and if each operation is unpredictable, this may mean that medical staff are not convinced of the potential to learn from other people’s mistakes. The fact that previous mistakes have occurred elsewhere and in different sets of circumstances, together with the acceptance that mistakes are inevitable, may also mean that medical staff are unwilling to report errors. If mistakes are seen as inevitable and a matter of bad luck, arising from a particular set of circumstances, then this implies that attempting to learn from other people’s mistakes (and by implication reporting those mistakes) is not regarded as a valuable exercise.

As one anaesthetist commented

I have given the wrong drug because I was tired, I wasn’t concentrating, I was thinking of my tax return, I was thinking of my son. What can anybody learn from that?  [17]

4.9 Summary points

- The definition of error varies between staff groups.
• Definitions of what counts as risky and safe behaviour vary between staff groups.
• Definitions of ‘professionalism’ vary between groups, with nurses viewing professionalism as synonymous with guideline adherence and doctors eschewing guidelines.
• Blame is mentioned as a barrier to error reporting, but other factors (e.g. a belief that mistakes are inevitable and not preventable, the view that there is limited potential for learning from mistakes) mean that, amongst doctors in particular, error reporting is not seen as a worthwhile exercise.
• Different groups of staff have conceptualised the factors which predispose to error in different ways, which may explain why staff appear to have entrenched opinions about the nature of the problem, despite anything that might happen to contradict these opinions.
• Medical staff complain about conditions which increase risk in the operating theatre (e.g. lack of suitable equipment) but appear to see it as part of their job to cope under such circumstances.
• Whilst managers emphasise the importance of complying with protocols, they also accept that resource constraints often make compliance difficult.
• There appears to be no link between adverse events and changes to practice, although changes to the error reporting system have raised awareness of the issue amongst staff.
• In some cases effort has been invested in establishing systems which at times appear to achieve very little and may even increase risk (e.g. theatre list planning system).
• The emphasis in safety orthodoxy on rules and safer systems may serve to undermine trust between different groups of professionals working in the operating theatres department.
• Although the Patient Safety Training course discussed in the next chapter is aimed at creating a risk conscious culture, it is difficult to see how this will influence behaviour in practice, given the differing and entrenched views on issues such as risk, error and learning from mistakes.
5. Patient Safety Training in the Trust

5.1 Introduction

5.1.1 This chapter describes the background and content of the locally-developed Patient Safety Training course (hereafter PST) operated within the case study Trust, showing its theoretical foundations, primary objectives and mode of delivery. It also presents course evaluation data.

5.1.2 The PST was developed and operated outside of the Trust's normal training programme, and although it was loosely affiliated to the Risk Management Department it was led by two consultant doctors outside of the Trust's management structure. Furthermore, unlike those courses run by Trust management, PST focussed less on the practical aspects of risk management in the organisation, and more on why patient safety is important and how staff should think about safety issues. According to one its leaders PST is intended to “create a risk conscious culture”.

5.2 The origins and development of PST

5.2.1 The PST has its roots in the enthusiasm and chance encounters made by one of the Trust’s consultant anaesthetists during the summer of 2001. The ‘story’ of the course starts with a tennis match between this anaesthetist and an airline pilot at a local tennis club. According to the anaesthetist their post-match conversations turned to talking about a ‘human factors’ training programme that the pilot had recently attended as a part of their mandatory training. At this time the anaesthetist had become increasingly interested in issues of risk and safety following the publication of Organisation with a Memory and publications in the British Medical Journal. Recognising the significance of ‘human factors’ to the current policy context the anaesthetist then set about making further enquiries about this training.

5.2.2 The anaesthetist discovered that a surgical colleague also had a strong interest in the emerging patient safety agenda. Through informal chats, often during surgical work in the operating theatre, they decided to pursue their interest in human factors with the airline Human Factors trainer. These two consultants remain the primary driving force and leaders for PST in the Trust.
5.2.3 After contacting the airline Human Factors trainer they discovered that he was already involved in developing a similar training programme with a group of medical staff from another NHS Trust. Through negotiation and discussion with this other group it was decided that an independent PST should be developed by including both medical groups and the Human Factors trainer, but importantly the course would remain commercially and operationally independent from any one NHS organisation. Together all three parties worked at translating materials used in airline training into a format that would be suitable for a health care audience.

5.2.4 The ownership of the materials and the training course was shared between these three groups. The primary audience for the training would be the respective hospital Trusts but it was hoped that in the long term it could be delivered as a business to other health care professionals.

5.2.5 Within the case study organisation, the PST material was initially delivered by the two doctors to a series of small workshops of mainly anaesthetic and surgical colleagues. According to the organisers, attendance was low initially, but through word-of-mouth the course eventually got more requests for attendance.

5.2.6 At this point the two PST leaders asked to make a small presentation to the Medical Director and the Trust Board to further develop the course and secure support for resources. In particular, they felt that for the course to be taken seriously it needed to be delivered in an appropriate room in the Trust’s Post-graduate Education Centre, it needed secretarial support for booking attendees and arranging materials and also the acquisition of visual-audio equipment to present the material. Through the support of the Medical Director’s department and budget these requirements were met.

5.2.7 A particularly important aspect of the support package was the appointment of a Course Manager. This person had originally been appointed in the Trust with other responsibilities in the organisation of Organ Donation but because these work commitments had diminished, she was asked to take up the new role of supporting PST. This person took responsibility for registering delegates, booking resources and even delivering course material.

5.2.8 Due to the growing popularity of PST and its relevance to the Trust’s Risk Management strategy, the organisers decided to include the Trust Risk Manager in
the delivery of the course. Initially, this input was intend to focus on the on-going changes in hospital procedure for incident reporting, but eventually this person also took an active role in all aspects of course delivery.

5.2.9 To provide an additional perspective to the course material the leaders of PST also asked a local airline pilot to participate, especially in providing insight about the experiences of this other industry.

5.2.10 During the period of the research a full day PST course was run on a monthly basis at the Post-Graduate Education Centre, with between 12 and 25 attendees, typically around 18 people. The course was ‘booked up’ several months in advance with requests made from across the Trust’s clinical divisions. More information is given below about the content of the course and its format.

5.2.11 Despite the support of the Trust, especially the Medical Director, at the early stages of PST’s development it was claimed by its two leaders that there was no sustained support for developing the course or really recognising how it could contribute to the organisation’s requirements for patient safety.

“We have always believed in it and are very enthusiastic about it, but it has largely been driven by just two or three individuals, with not a lot of support really from the senior people, you get a lot of lip service but you don’t get a lot of real support.” [CONSULTANT ANAESTHETIST]

5.2.12 Towards the end of the field work period it appeared that the relationship between PST and the Trust may have been complicated by the desire of the leaders to maintain autonomy from the hospital. They had made attempts to promote the course commercially and had run several private sessions for paying customers at a local conference centre. However, despite their intention to provide the course at no cost to the Trust, except for support costs, it appeared that senior management and those working in the Risk Management Department did not really understand where it should fit within their own priorities and plans, including their own risk management training programme.

5.2.13 One interpretation is that the Trust senior management wanted more control over how PST fitted in within their on-going initiatives, especially since it was operated by Trust employees on Trust time. At the conclusion of the research the
PST leaders had finally secured some commitment to further support from the Trust but although the implications of this on practice are unknown.

**5.2.14** Another significant feature in the development of PST has been the relative independence between the three founding groups. After providing the basic material for the course the airline Human Factors trainer had had little further involvement. Moreover, the relationship between the two professional groups had also deteriorated with each wishing to develop the course in different directions and with little consultations about sharing new material. In particular, the content of the course was in a state of continual incremental development, with the two leaders regularly identifying new source materials, video clips or reports and changing the content of their presentation slides. It appeared that this was important for the trainers because it enabled them to put their personal stamp on their material and regard it as their own. Indeed, the two PST leaders were locked in a light-hearted competition to find new and better material.

**5.2.15** The origins and development of PST suggest that, rather than a management device for supporting on-going organisational change, the course was the product of enthusiastic professionals with an interest and belief in current patient safety initiatives and a desire to promote change from within the health care professions. They sometimes appeared as maverick leaders who resisted wider developments in the Trust and this could have restricted the positive relationship between PST and senior management. However, in the context of the developments in patient safety it remained the only educational programme explicitly based on human factors training and explicitly aimed at promoting cultural change.

**5.3 **The objectives of PST

**5.3.1** According to the leaders of PST its primary or central objective was to “create a risk conscious culture”. From the organisers’ perspective, the introduction of new risk management systems would not be feasible without first convincing staff of the reasoning behind this change. The course was aimed, therefore, at elaborating the underlying purpose and rationale of patient safety in order to secure a new way of thinking and working their Trust.

**5.3.2** Our observations of PST, both its design and delivery, suggested that the course leaders aimed at shocking their audience about the scale and nature of error
and risk in health care, demonstrating how such problems were common to many industries, and then outlining how a new way of thinking about safety could improve both individual and organisational performance. Specifically, the course aimed to promote the principles of systems thinking and the lessons of human factors from other settings by providing staff with a “conceptual toolbox” which they could take away and apply in their practice. A heavy emphasis was placed on getting people to think in terms of systems rather than individual responsibility.

“It’s about trying to get people thinking different. We give them the conceptual tools, like red flags or error chains, and show them how important it is, but they have got to go away and use it” [CONSULTANT SURGEON]

“We are still very much at the grip of the blame culture, but I think the good thing about the human factors course is it does make you see that with the right systems approach you can make safety nets to catch errors, which people will always make.” [CONSULTANT ANAESTHETIST]

5.3.4 PST did not aim to inform staff about the practical aspects of participating in the Trust’s new risk management systems. Instead, it was concerned with engaging with people so that staff could appreciate the underlying purpose and rationale of patient safety and human factors approaches.

“At the moment you have got hordes of people in the organisation and it doesn’t matter where they are, whether they are high up the executive board, or people working as health care support workers, anywhere in the spectrum, you have got hordes of people who have heard the term risk management but nobody really understands quite what it really means or quite how to get a handle on it and even people high up in the organisation who are supposedly people in charge of looking after risk management, don’t really understand what it really is and the popular science aspects of it help to get the message across, you know this is something real, it is there, you can tackle it, it is not difficult, it is an easy thing to do, these are the first steps you need to take. Eventually people have to learn all about doing matrices and all that stuff but you don’t have to jump in at the deep end with all the complicated stuff, you just have to make people understand how easy it is to get a grip on it if everybody works towards that goal.” [CONSULTANT ANAESTHETIST]
5.3.5 Despite their enthusiasm, the PST leaders viewed cultural change as difficult, but this appeared to fuel their desire to establish human factors as normal for the next generation of health care professionals.

“What actually happens is those people who disagree with you are eventually replaced by a generation of people who have grown up with the idea and I think to some extent that is what we are banking on with human factors. Eventually the old guys will fall off their perch and be replaced by people who accept it as commonplace, and that is what cultural change is about to some degree because you can’t turn peoples minds completely around.” [CONSULTANT ANAESTHETIST]

5.4 The design and content of PST

5.4.1 As outlined above, PST was explicitly based on a Human Factors Training programme run by an airline company. Its adaptation for the health care setting required that all groups involved in course design become familiar with the underlying principles of human factors, ‘safety science’, clinical risk management and patient safety.

5.4.2 In developing and running PST the two course leaders had attempted to engage with and keep abreast of the various theoretical and empirical writings relevant to patient safety. Between them they had collected many leading international texts and journal articles related to the subject and through their collection and storage had established an informal lending service for other presenters or colleagues interested in patient safety. The collection of material on human factors and patient safety made it possible for them to expand and develop the basic course to adapt it for a health service audience. Nevertheless the overall design of the course remained faithful to this prior established training programme and consisted of nine related segments or modules.

5.4.3 From our observations of the course and with reference to written course material each section is briefly described:
5.4.3.1 An introduction to clinical error and patient safety

Empirical evidence is given of the risks and dangers associated with health care delivery. Specific attention is paid to the Harvard Medical Practice Study, the Institute of Medicine report *To Err is Human* and *An Organisation with a Memory*. These findings are then compared with research from other sectors and industries, such as the military, aviation and petrochemicals.

A brief introduction is then given on safety improvements in these sectors. Reference is made to the idea of human factors and an initial description of the terms ‘active’ and ‘latent’ factors is provided. It appears that the intention is to inform participants about the scale of error in health care, to grab their attention, but also to show that this problem is common to many complex, high-risk and high technology organisations: as the presenters often suggested ‘the NHS is not alone’. At this stage it is normally claimed that PST will give participants a “toolbox” of concepts and ideas that they can apply in their work or sometimes a collection of “take away weapons” for tackling unsafe practices, based on the experiences and lessons of these other industries.

5.4.3.2 Error Chains

The concepts of active errors and latent factors are developed within this section. Initial consideration is given to the mental models of human performance, with reference to the work of Rasmussen and Jensen. This is then elaborated to give an indication of the various factors that can interfere with human performance, such as stress, competing priorities, poor teamwork and lack of equipment. Participants then hear how active errors often have trajectories or chains of preceding events where these other factors, decisions or defensive failures lead to error. Examples are given from both the health sector and non-health care sector using video presentations. Participants are shown a worked example of an incident, where the presenters identify the factors underlying a high profile case of the inappropriate injection of Vincristine. This is then further explored through group-work and a case study using the sinking of the Herald of Free Enterprise. The aim here appears to be to encourage individuals to think beyond their immediate task-based work practices and to focus on the larger systems in which these tasks are performed. Considerable attention is given to the problem and inappropriateness of individual blame within this
context. This appears to be geared towards changing participants’ perceptions and interpretations of error and harm.

5.4.3.3 Red flags and Error chains

This relatively small section focuses on the identification of potential error chains through the recognition of ‘red flags’ or warning signals of potentially dangerous situation. Details are given of various ‘red flags’ with examples drawn from various industries, such as ‘indecision’, ‘confusion’, ‘unanswered questions’, ‘frustration’, and ‘rapid change’. It appears that the intention is to illustrate ways in which staff can recognise the emergence or influence of a potential error-chain even when they are at the ‘sharp end’ through encouraging participants to stand back and think about what is going on around them.

5.4.3.4 Situational awareness

This section follows on from ‘Red Flags’ through a more detailed examination of the psychology of perception. It describes theories such as the ‘primacy effect’, ‘confirmation bias’ and ‘change blindness’. The theoretical detail in this section is aimed at changing the way participants think about perception with the messages being delivered using several entertaining videos and visual aids and reference to ‘popular psychology’. These theories are then further explored with examples of common perception problems within clinical settings, such as drug labelling and equipment design. This section builds on the previous discussion of error-chains and red flags but starts to focus more directly on the individual dimension (or shortcomings) and how individuals can respond to these situations through being more aware of these shortcomings and being more vocal.

5.4.3.5 Speaking up

This section suggests ways in which people can communicate their concerns for safety in a confident and non-threatening manner. The underlying message is that staff should ‘state the obvious’ and not be afraid to suggest that they have identified a ‘red flag’ or warning sign. Initially consideration is given to the problems of talking about error and safety within the health care context with particular attention given to the difficulties associated with gender and occupational status differences. Illustrated examples of ‘speaking up’ are taken from the aviation sector and using video tape
footage, examples of poor and good communication are given. The participants are encouraged to use the acronym PACE when thinking about speaking up: Probe, Alert, Challenge and Emergency, which describes the different levels of speaking up about safety concerns.

5.4.3.6 Communication

This small section provides a more theoretical examination of communication. Consideration is given to the way in which communication occurs, with emphasis given to the way in which people encode their messages, transmit their messages and the background noise that can undermine communication. Particular strategies for improved communication are encouraged, such as avoiding pronouns (e.g. ‘take it out’ – drain, monitoring line or catheter?) or three letter abbreviations which are common in health care settings, but which may give rise to misunderstanding or confusion.

5.4.3.7 Cultural change

This section was rarely delivered as a part of PST but it was identified as a component of the course literature and a potential module to be used when there was more time available or when working in smaller groups. It focused on the main constituents of culture, e.g. beliefs, values and norms, with culture described as the “glue” that holds together social groups, although it was also suggested that culture is difficult to understand. It appeared this section was developed because of the perceived centrality of culture to patient safety initiatives, but possibly because of the problems of discussing cultural in a practical way within the time constraints, it was not routinely used as a part of the training. Instead, the presenters would make continually reference to issues of culture through the day within other sections, with the idea of a blame culture attracting particular significance.

5.4.3.8 Error management

This section appeared to be an attempt to pull together the previous components of the training to demonstrate how safety concerns could be managed. Attention returns to the idea of the active/latent split and it is suggested that despite all the efforts of individual staff members to think differently and communicate more effectively, ultimately safety issues should also be managed in a systematic way. The section
returns to explaining the current policy context and the introduction of the National Reporting and Learning System. The early cognitive and human factors theories of error are further elaborated to show their relevance to patient safety and the key components of incident reporting and root cause analysis are described.

5.4.3.9 Incident reporting

This is the only section of PST that directly addresses recent developments in Trust policy and risk management. Initially it follows on from the previous section to suggest that one way in which staff can participate in error management and communicate their safety concerns is to formally document and report them. This idea is then developed with reference to the Trust’s incident reporting system which is described and outlined, through worked examples.

5.4.4 In summary, the content of PST appeared to focus on encouraging staff to think differently about safety and risk in their work. In particular, attendees were encouraged not to see these problems as individual in nature but the product of complex organisational and inter-personal relationships. However, given the emphasis on individual action, such as recognising the warning signs and improving communication and incident reporting, the course emphasises that although errors may be systemic in origin there are still things that can be done in individual practice. The training appears to dispel the idea of individual responsibility and blame in relation to errors, but also attempts to avoid a situation of ‘learned helplessness’ by encouraging staff to take action.

5.4.5 The theoretical and empirical content of PST appears to draw from a mixture of writings on human factors and safety science, popular psychology and patient safety policies. It appeared to fluctuate between the theoretical and abstract (error chains situational awareness, communication, culture and error management), and the practical (red flags, speaking up and incident reporting) with continual reference given to the policy context. However, a great deal of the worked examples and illustrations given throughout the training were clearly based on experiences of the aviation industry.

5.4.6 During one observation we had the opportunity to note the views of James Reason about the theoretical content of PST. His work on human factors and error management are well established in the literature and is often referenced during the
delivery of PST. He had been invited to attend a special PST aimed at raising awareness about the course amongst the Trust senior management and other NHS Trusts in the region. During this observation on many occasions he appeared to find the content of the course somewhat questionable and in some circumstances inaccurate. For example, when the section of ‘error chains’ was delivered he suggested that it was inappropriate to think in terms of linear chains of events and instead the complexity of an error often resembled a web of causal factors. On another example, he suggested that by focussing on the system component excessively there was a tendency to ignore the individual contribution and responsibility.

5.4.7 On several occasions he appeared quite agitated and perplexed at the way in which the course often “misses the point” of a particular idea and by the time of the lunch interval his contributions and comments had increased to such as extent that he decided to stop watching the course, because his contributions were interrupting the experiences of other participants. His reaction to PST suggests that whilst it attempts to draw on the theoretical principles of human factors and error management, according to one its leading exponents, it may not be entirely accurate.

5.5 The organisation and delivery of PST

5.5.1 Our observations of PST revealed that it invariably followed the same format and was delivered a consistent way. Although the airline Human Factors Training course, on which the course was based, was delivered over a two days, PST was designed as a full one-day event. The course leaders often commented that they would much rather deliver the material over two half days or even two full days, but they recognised that the work pressures and staff shortages of the health service made it difficult for the Trust to make this time available for employees. The delivery of PST was clearly time constrained and on many occasions rushed to ensure that all the core materials are delivered (the notable exception is the module for Culture which was rarely used).

5.5.2 A typical PST day would commence around 8.45-9.00am. Upon arrival at the Post-graduate Education Centre participants were asked to sign-in and were offered tea or coffee refreshments in a reception area. At around 9am they would be asked to move into the appropriate seminar room and take their unreserved seats. The layout of the seating resembled a horseshoe with the audience facing a screen and
projection unit at the front of the room. Each participant received an information pack summarising the course content and a schedule of the day’s events. At this time one of the course leaders would commence the presentations with a general introduction that included brief biographies of the presenters, acknowledgments to those who developed the course, fire and safety information and an outline of the day’s events. Each participant was then asked to take it in turns to give their name, role and as an ice-breaker, to say what they would not do for £1 million.

5.5.3 After these initial introductions, each of the modules described above was delivered, mostly using Microsoft PowerPoint, with additional video clips, visual demonstrations and role-plays throughout the day. During the presentations participants were given the opportunity to ask questions or make comments. The delivery of the course was slick and practiced, with the presenters apparently familiar with the course material and able to answer most questions of a non-technical or specific nature. The length of each module varied between 30 and 45 minutes.

5.5.4 At around 10.30am following the delivery of the Error Chain module participants were given the opportunity to take further refreshments, and following a ten minute break were asked to reconvene in the main room to commence group work. In groups of about six people, participants were asked to apply the principles of error chains to the case of the sinking of the Herald of Free Enterprise at Zeebrugge. They were provided with a case study summary, including brief details of the various events that led to the incident and asked to ‘map’ the error chain on the large sheet of paper provided. Normally the groups had 20 minutes to complete this task and were asked to give a brief summary of their approach afterwards. In some instances participants did not enjoy this group work stage or felt uncomfortable working in groups, but it was normally the case that each group would make an attempt to accomplish the task.

5.5.5 The course then returned to following the schedule of modules. At around 12.45-1pm the group would break for lunch. Participants normally had between 45 minutes and hour to for this break to talk with other audience members. After this time the course would recommence with the section on ‘Speaking Up’. Often after lunch audience participation became considerably less. It seemed that participants were tired and on a small number of occasions people were seen to fall asleep. This situation was exacerbated by the length of the day, which did not normally finish until 4.30pm or even 5pm. It appeared that the audience had in some sense received too
much information within a very short time frame and was becoming overloaded. In an attempt to reinvigorate the audience, the presenters would often use role-plays to increase participation and in effect ‘wake people up’. A further break for refreshments was also scheduled for 3.00pm although in most cases delegates were asked to take a short break and return to the room with their tea of coffee. The presentations would normally conclude at around 4.30pm, when individuals were given the opportunity to ask any further questions or raise issues, and were requested to complete a feedback form. In addition participants were asked to complete a more detailed questionnaire at their own convenience and return it via the internal post.

5.5.6 Responses in the course evaluation questionnaires suggested that the course was very well received by participants, who rated all factors as good/very good. The main improvement identified was time for more small group work. Our analysis of the responses comparing before and after attendance\(^1\) (see figure 1 for summary of statistically significant changes) suggested that participants’ views had changed as a result of attending the course.

5.6 Summary

5.6.1 PST was designed and developed by enthusiasts within the Trust who, in their own time, contacted relevant experts in the field of Human Factors training to develop a similar programme in the health service within the context of recent health policies. Although PST is independent from Trust management it appears to compliment and support recent changes in risk management and represents the only training mechanism attempting to directly engage with staff on a deeper cultural level.

5.6.2 It is based on training conducted in the aviation sector with necessary modifications for health care, and despite the efforts of course leaders to provide rich theoretical and empirical foundations to the course, it may be the case that it contains significance conceptual weaknesses. The presentation of the course is highly

\(^1\) 207 people completed the safety attitude questionnaire after coming on the course. This number is significantly less than those completing prior to the course (n=491). The course questionnaire was developed as part of the PST development and contained no means of identifying the individual completing it or of matching pre and post attendance responses. We therefore developed a matched sample and used this for comparison of pre- and post-course responses, rather than trying to compare such unevenly matched samples. Matching was done using demographic data with 90% matching the location of their work, and 85% matching the job title. Using this method, 188 records were identified and this has been used as the basis for comparison of pre- and post-course responses.
developed using various visual-audio aids, but the detail and volume of information may be too great to be effectively delivered within a single day event.

5.6.3 Its stated objectives are to foster a risk conscious culture through providing staff with a new way of thinking about patient safety based on the principles of human factors and by giving staff a toolbox to improve the safety of their work. We were unable to assess the impact of the course on working practices and the development of a risk conscious culture. However, given the lack of agreement amongst different groups of staff on issues such as the nature of risk and error the efficacy of measures intended to improve safety, and given the reservations expressed by James Reason, it seems unlikely that this one day training course will make great progress in fostering a safety culture within the operating theatres department.
Figure 1
Summary of responses to safety attitudes questionnaires.

<table>
<thead>
<tr>
<th>Category</th>
<th>Question</th>
<th>% change</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working together</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- in teams</td>
<td>26 - Team leaders who encourage suggestions from team members tend to be weak leaders</td>
<td>-12</td>
<td>Participants now believe more strongly that team leaders who encourage suggestions from team members are not weak leaders i.e. a participate style is not a sign of weak leadership</td>
</tr>
<tr>
<td>- communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- hierarchy and interdisciplinary relationships</td>
<td>12 - The senior person present should take control and make all decisions in life threatening emergencies.</td>
<td>-14</td>
<td>Participants now believe more strongly that the senior person should not take control and make decisions in life threatening emergencies i.e. they are perhaps more empowered themselves?</td>
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<tr>
<td>doing the job</td>
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<tr>
<td>- before and during the task</td>
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<tr>
<td>- what affects my performance</td>
<td>24 - I don’t think that I should have to change my behaviour to suit others</td>
<td>-26</td>
<td>Participants now believe more strongly that they should change their behaviour to suit others i.e. their belief in the merits of working together by changing behaviour are enhanced</td>
</tr>
<tr>
<td>- verbalisation</td>
<td>10 – Verbalising plans and checking comprehension must not delay urgent tasks, procedures or operations. 13 – I find it patronising to be asked to repeat-back instructions when they are well within my level of competence. 41 – Time spent in repeating back communications would be better spent on improving patients care</td>
<td>-19</td>
<td>Participants now believe more strongly that verbalising plans and checking comprehension is important, even if it causes some delay</td>
</tr>
<tr>
<td>review after the event</td>
<td>36 - Debriefing requires too much time to be worthwhile in my work</td>
<td>-13</td>
<td>Participants now believe more strongly that debriefing is important and worthwhile.</td>
</tr>
<tr>
<td>about me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- health and stress</td>
<td>11 - A truly professional team member can leave personal problems behind when working.</td>
<td>-15</td>
<td>Participants now believe more strongly that personal problems cannot be “left behind” when working</td>
</tr>
<tr>
<td>- beliefs about error</td>
<td>20 - The majority of hospital staff investigated for malpractice or serious error are incompetent</td>
<td>-18</td>
<td>Participants believe less strongly that the majority of hospital staff investigated for malpractice are incompetent i.e. they have changed their understanding of the source of malpractice from incompetence.</td>
</tr>
</tbody>
</table>
### Safety attitudes questionnaire

Please give a response to each of the following statements. Circle the response which best describes how you feel about each statement. Responses can range from 'strongly disagree' (1) to 'strongly agree' (5). There is not a correct answer. The questionnaire is anonymous.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Good team working in hospitals produces the best outcome for the patient.</td>
</tr>
<tr>
<td>2</td>
<td>I depend on other people to help protect me from my mistakes.</td>
</tr>
<tr>
<td>3</td>
<td>I have the ability to influence how others behave in the team.</td>
</tr>
<tr>
<td>4</td>
<td>Blaming the 'system' is most frequently an attempt to excuse inadequate performance.</td>
</tr>
<tr>
<td>5</td>
<td>I am encouraged by my seniors and colleagues to report anything unusual I see happening in my department.</td>
</tr>
<tr>
<td>6</td>
<td>Good communication is as important as technical proficiency.</td>
</tr>
<tr>
<td>7</td>
<td>Human error is inevitable.</td>
</tr>
<tr>
<td>8</td>
<td>I do not personally benefit from adverse incident reporting.</td>
</tr>
<tr>
<td>9</td>
<td>Decisions should be reviewed as soon as possible after an event to assess whether a different solution may have produced a better outcome.</td>
</tr>
<tr>
<td>10</td>
<td>Verbalising plans and checking comprehension must not delay urgent tasks, procedures or operations.</td>
</tr>
<tr>
<td>11</td>
<td>A truly professional team member can leave personal problems behind when working.</td>
</tr>
<tr>
<td>12</td>
<td>The senior person present should take control and make all decisions in life threatening emergencies.</td>
</tr>
<tr>
<td>13</td>
<td>I find it patronising to be asked to repeat-back instructions when they are well within my level of competence.</td>
</tr>
<tr>
<td>14</td>
<td>A regular debrief of procedures and decisions after the completion of each task or procedure is important in maintaining effective team working.</td>
</tr>
<tr>
<td>15</td>
<td>Before commencing a task or procedure, I consider potential problems which may occur and think about how I could solve them.</td>
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<tr>
<td>16</td>
<td>It is important to avoid negative comments about the procedures and techniques of other learn members</td>
</tr>
<tr>
<td>17</td>
<td>Even when fatigued, I perform effectively during critical phases of work.</td>
</tr>
<tr>
<td>18</td>
<td>Body language is not very useful in telling what people are thinking.</td>
</tr>
<tr>
<td>19</td>
<td>Stress can have beneficial effects on job performance</td>
</tr>
<tr>
<td>20</td>
<td>The majority of hospital staff investigated for malpractice or serious error are incompetent</td>
</tr>
<tr>
<td>21</td>
<td>Team members in charge should verbalise plans for procedures or actions and should be sure that the information is understood and acknowledged by the others</td>
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<tr>
<td>22</td>
<td>When fault finding I only attempt to find information which supports what I believe the problem to be</td>
</tr>
<tr>
<td>23</td>
<td>Senior staff should encourage questions from junior medical, nursing and other staff during procedures and tasks if appropriate</td>
</tr>
<tr>
<td>24</td>
<td>I don't think that I should have to change my behaviour to suit others</td>
</tr>
<tr>
<td>25</td>
<td>Effective team working requires members to take into account the personalities of others</td>
</tr>
<tr>
<td>26</td>
<td>Team leaders who encourage suggestions from team members tend to be weak leaders</td>
</tr>
<tr>
<td>27</td>
<td>When involved in a task, I am often unaware of what others are doing around me</td>
</tr>
<tr>
<td>28</td>
<td>Being criticised feels like an attack on myself or my professional skill</td>
</tr>
<tr>
<td>29</td>
<td>Team members should alert others when their work overload has become (or is about to become) excessive</td>
</tr>
<tr>
<td>30</td>
<td>The way others behave towards me has no affect on the quality of my work</td>
</tr>
<tr>
<td>31</td>
<td>I periodically review, check, and if necessary reassess the status of the patient during an operation or procedure</td>
</tr>
<tr>
<td>32</td>
<td>All members of my department are qualified to give me feedback</td>
</tr>
<tr>
<td>33</td>
<td>I am more likely to make judgement errors when working under pressure</td>
</tr>
<tr>
<td>34</td>
<td>It's up to the listener to understand what's being said to him.</td>
</tr>
<tr>
<td>35</td>
<td>I sometimes feel uncomfortable telling members from other disciplines that they need to take some action</td>
</tr>
<tr>
<td>36</td>
<td>Debriefing requires too much time to be worthwhile in my work</td>
</tr>
<tr>
<td>37</td>
<td>My performance is not adversely affected by working with an inexperienced or less capable team member</td>
</tr>
<tr>
<td>38</td>
<td>In teams of professionals, personality is of minor importance</td>
</tr>
<tr>
<td>39</td>
<td>A debriefing should not only concentrate on negative outcomes, but should also include positives</td>
</tr>
<tr>
<td>40</td>
<td>Any member of the team can interrupt a procedure if they require clarification or are concerned about a situation</td>
</tr>
<tr>
<td>41</td>
<td>Time spent in repeating back communications would be better spent on improving patients care</td>
</tr>
<tr>
<td>42</td>
<td>The quality of my sleep is not affected by my shift rotation pattern</td>
</tr>
<tr>
<td>43</td>
<td>I am confident that I can recognise the signs of fatigue in other team members</td>
</tr>
<tr>
<td>44</td>
<td>Team members should not question the decisions or actions of senior staff except when they threaten the safety of the patient</td>
</tr>
<tr>
<td>45</td>
<td>I risk my career when reporting adverse events or near misses happening to patients under my care</td>
</tr>
<tr>
<td>46</td>
<td>I usually try to conceal fatigue or stress from my seniors</td>
</tr>
<tr>
<td>47</td>
<td>I routinely repeat-back a summary at the end of all important verbal communications</td>
</tr>
</tbody>
</table>
6. Implications of the research

6.1 Introduction

We set out to examine factors predisposing to error in the operating theatre department. Unlike most other patient safety research in recent years, we used ethnographic methods to explore values, beliefs and attitudes of staff working together in-depth and over time. This may explain why some of our findings call into question the ‘taken-for-granted’ assumptions underpinning current patient safety policy. In what follows we discuss the wider implications of these findings.

6.2 Blame and error reporting

For example, our study suggests that whilst fear of blame may be a barrier to error reporting, the assumed impact of this may have been overstated. Factors such as a belief that mistakes are inevitable and not preventable, as well as the view that there is limited potential for learning from mistakes, mean that, amongst doctors in particular, error reporting is not seen as a worthwhile exercise. Other commentators have noted how such views find their genesis, in part, in aspects of medical education and socialization into medicine (Lester and Tritter 2001; Bosk 1979). The implications of this are that attempts to increase error reporting amongst medical professionals will fail if the socialization processes which commence early on in the careers of medical professionals continue to reinforce the belief that errors are occupational hazards which cannot be prevented.

6.3 Safety, guidelines and professional identity

6.3.1 Whilst the rule-based approach to patient safety has achieved the status of accepted wisdom in policy circles, it does not appear to command support from the doctors in our study. Resistance to rules and guidelines on the part of hospital doctors is well documented in the patient safety and wider health services research literature more generally. Many commentators have sought ways of improving compliance with such rules. For example, Lawton and Parker (1999) suggest that ‘successful implementation of protocols or guidelines in the NHS depends on achieving the right balance between standardising practice and allowing professionals to use clinical judgement’. However, our data lead us to suggest that this compromise may not be reached easily in a multidisciplinary setting such as
operating theatres, which is characterised by differences in beliefs about what it means to be a professional.

6.3.2 In particular, medicine’s status as an idiographic science of the individual means that one of the first rules that doctors learn is never to generalize (Hunter, 1991). Doctors may, therefore, perceive clinical guidelines, based, as they are, entirely on generalisations, as something alien to the practice of medicine. But more importantly, a policy to implement the use of clinical guidelines and to define non-compliance as either an error or a violation is not merely a matter on which doctors can reach a compromise or agree to disagree with managers, since they may perceive it as an assault on their identity.

6.3.3 Modern nursing has been described as a shift from the moral to the professional, accompanied by a closer identification with medical interests, values and practices. As Macleod Clark and Hockey (1981) see it nurses must develop the ability to ‘defend their decisions and actions on a scientific rather than intuitive or conventional basis. It is on this ability that their claim to professionalism rests’. The model of medicine to which nurses are supposed to aspire does not, however, seem to be that espoused by the doctors in our study, who largely eschew guidelines and rely on experience and tacit knowledge. Although the doctors and nurses in our study worked together in teams, our data show that they see clinical practice in very different ways. Rather than team values or beliefs, doctors and nurses espouse the collective values of the particular profession into which they have been socialised. Our findings suggest that these beliefs are likely to prove more resistant to change or compromise than is assumed by advocates of ‘safety culture’.

6.3.4 Furthermore, whilst nurses are supportive of written protocols, the unwritten rules which govern theatre etiquette (reflected in one surgeon’s definition of the ultimate scrub nurse who says nothing during an operation and the offence taken when a ‘scrub nurse mistakes you for one of your colleagues and gives you the wrong stuff that I don’t use) mean that it is unlikely that nurses will challenge doctors or that doctors see them as professionals whose views are equally valid within the operating theatre.

6.3.5 The implications are that an emphasis on increased use of protocols is unlikely to produce the benefits anticipated. Furthermore as we discuss below,
pursuing a protocols-based approach to the delivery of care may have unintended, detrimental consequences.

6.4 Safety in complex systems

6.4.1 As our research shows the work of hospital operating departments is heavily influenced by events in the wider hospital environment. Attempts at standardisation, motivated by a desire to facilitate the smooth-running of theatres, may have unintended consequences which pose threats to safety. This study has documented some of these wider factors relating to disruptions and delays. Some of these reflect a desire for the efficient management of theatre timetables. However, this timetabling and service delivery takes place in a context of resource constraints, which impose restrictions on operating theatres staff. Working within these constraints, rather than attempting to change the system appeared to be the norm amongst the staff we observed. Accommodating variation and flexibility in systems characterised by standardisation and a desire for uniformity is likely to be difficult.

6.5 Trust and guidelines

6.5.1 The application of guidelines is already seen by some as part of a top down monitoring process which changes the relationship between medical professionals and those they serve (Harrison and Ahmad 2000). Berwick (2003) has highlighted the adverse effects of developing detailed protocols for care, which hark back to Tayloristic scientific management, stifling innovation and eroding trust. Similarly, Harrison and Smith (2004) see the spread of rules and guidelines in health services as part of a process of ensuring public confidence that fails to acknowledge the role of uncertainty, morality and discretion in the provision of care. In contrast to formal monitoring and regulatory frameworks, trusting relationships are seen as involving shared norms rather than rules and regulations (Fukuyama 1995) with collective values fostering mutual cooperation.

6.5.2 Detrimental effects of this shift include a loss of trust and the stifling of individuality and innovation which offer the potential to lead to quality improvements. What our study suggests is that the existence of different views about the intrinsic value of guidelines (as opposed to the top-down application of guidelines per se) compounds the situation by impacting on relationships between groups of clinicians. If nurses and managers view professionalism as bound up with guideline adherence,
then as our findings suggest, they will regard doctors as acting unprofessionally and this is likely to further erode trust between team members.

6.6 Safety culture

6.6.1 A safety culture as defined by the NPSA is said to involve fostering a willingness to report and learn from errors and the possession of a shared set of beliefs, attitudes and norms in relation to what is seen as safe clinical practice. Our study suggests that there are huge differences of opinion between doctors, on the one hand and nurses and managers on the other, which derive from different professional norms and values about what constitutes safe clinical practice. Despite a shared commitment to patient safety at a superficial level, it seems unlikely that, when comparing doctors with nurses and managers, the sort of shared beliefs, which the NPSA describes, will be easily achieved. Paradoxically, the emphasis on guidelines as leading to safer systems may diminish the chances of achieving the cooperation and collective values, which are seen as essential components of a safety culture.

6.6.2 The emphasis on creating a safety culture and definitions of ‘weak’ safety culture based on the absence of certain features (e.g. lack of specific protocols, inadequate reporting systems) may create the impression that in health settings there exist spaces which need to be filled with high-reliability processes. This ignores the presence of unwritten rules which govern behaviour in organisations. Rather than focusing on what is absent and speculating on why progress is so slow, our findings suggest that it may be more fruitful for future researchers to explore the unwritten rules which govern behaviour in these settings and examine the ways in which such rules are produced, maintained and accepted as legitimate.

6.6.3 Our findings raise questions about the emphasis in Government policy on reducing the existence of a blame culture and the extent to which this will dramatically increase error reporting. To talk of ‘a’ blame culture or ‘a’ safety culture ignores the existence of different norms, values and attitudes amongst the different staff groups we observed. It may make more sense to talk of different identities and the different attitudes to risk, blame and error associated with these. These findings have important implications in the context of the National Patient Safety Agency’s emphasis on standardisation, systematisation and safety culture.
6.7 Areas for further research

6.7.1 Machiavelli’s statement that ‘a man who neglects what is actually done for what should be done learns the way to self-destruction’ (1515;1984 p.91) may sound somewhat melodramatic. However, it does highlight the danger of focusing on ideals (in this case a ‘safety culture’), without examining clinical practice as it is actually experienced. More open-ended studies, rather than investigations which proceed from assumptions about ‘safety culture’ would provide a better understanding of what might be seen as ‘factors predisposing to error’ in health care settings. Studies examining the ways in which different groups of staff understand the worlds they inhabit and the implications of this for ‘safety’ would also help reflect critically on whether notions of safety culture and blame culture are helpful in understanding patient safety in operating theatres and other health care settings.

6.7.2 This study used one hospital as a case study site. The extent to which our findings apply in other settings is unclear. A larger study examining more than one site would allow for the theories and explanations generated in this research to be tested more widely. In addition, studies in other types of health care settings would allow for comparisons to be made between for example, sub-groups of medical professionals. For example, do GPs share similar attitudes to error exhibited by the surgeons in our study? If not, what are the reasons for these differences? If so, why do these beliefs endure in such different settings?

6.7.3 Our study suggests that attitudes towards safety are heavily influenced by the socialisation processes of the different professions concerned. Previous research in a US context describes how the trainee surgeons are socialised into the profession, with consequences for attitudes towards error and blame (Bosk, 1979). If policy makers are seeking to change attitudes to error and blame, then they need to understand these socialisation processes which commence early on in the careers of health professionals. Research conducted in a UK context examining these processes for a range of health professions would greatly add to understanding of these issues.

6.7.4 This study found wider systems factors influencing safety in the operating theatre. For example, budgetary pressures restricting access to equipment. However, we did not investigate these in detail. Further research examining the impact of wider
system pressures (e.g. waiting list targets, financial pressures) on behaviours in operating theatres would help shed light on this issue.

6.7.5 Further research which includes a clinical observer and preferably a participant observer (as opposed to a ‘fly-on-the-wall’ observer) to enable deep immersion in the setting is likely to provide additional insights into practices and safety in clinical settings.
Appendix A Example of Red Flag guided observation notes from surgical procedure.

Red Flag Check List

<table>
<thead>
<tr>
<th>Theatre: Theatre 7</th>
<th>Date/Time: 26th Jan. 8.00-12.00</th>
<th>Case/Patient: Mr ##### Vascular</th>
</tr>
</thead>
</table>

Associated observation/documentation
- Open observation

<table>
<thead>
<tr>
<th>Red Flag (count)</th>
<th>Details (description, actions, process, context, time)</th>
<th>Actors/Origin</th>
<th>Consequence (impact, following actions, chain)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarms:</td>
<td>1. Alarm sounds when opening up the patient - it is acknowledged and action is taken.</td>
<td>Anaesthetists</td>
<td>Some drug is given.</td>
</tr>
<tr>
<td>Ambiguity, conflicting</td>
<td>1. The scrub nurse has to do 2 tasks at the end of the operation – clearing away checks and supporting the surgeon.</td>
<td>Nurse</td>
<td>No major impact – but there is a potential problem with conducting checks thoroughly or not supporting the surgeon.</td>
</tr>
<tr>
<td>task, uncertainty</td>
<td></td>
<td></td>
<td>Discussion and distraction from tasks The nurses seem to be rushing to get on with their checks or are not doing them at the appropriate times.</td>
</tr>
<tr>
<td>Communication, Broken,</td>
<td>1. Lack of communication between nurse and surgeon about how each is getting on – to make sure they are working at the same pace – communication barriers.</td>
<td>Nurse/surg</td>
<td>The nurses seem to be rushing to get on with their checks or are not doing them at the appropriate times.</td>
</tr>
<tr>
<td>Problematic</td>
<td></td>
<td></td>
<td>Discussion and distraction from tasks</td>
</tr>
<tr>
<td>Confusion, uncertainty,</td>
<td>1. Whether the instrumentation trolleys were appropriate for an operation. Not noticed.</td>
<td>Nurse</td>
<td>Discussion and distraction from tasks There seems to be more tension in the theatre and apprehension about whether they should continue with their work.</td>
</tr>
<tr>
<td>disorder</td>
<td>2. It is reported that a bed is not available for one of the patients resulting in some confusion.</td>
<td>Nurse</td>
<td>Discussion and distraction from tasks There seems to be more tension in the theatre and apprehension about whether they should continue with their work.</td>
</tr>
<tr>
<td>Policy/procedure</td>
<td>1. Nurse may not be following the checking procedures of the instrument checks pre-closing. It seems that the surgeon is already closing and they are just started.</td>
<td>Nurse.</td>
<td>Potentially lead to equipment being left in – surgeon must think they have got everything, but not checked.</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Preoccupation, distraction</td>
<td>1. When staff confused about instrumentation trolleys they became distracted from their various tasks and focussed on this discussion and examination of the notes. Not noticed.</td>
<td>Nurses</td>
<td>Not focussed on task for several minutes – unknown consequences, no apparent</td>
</tr>
<tr>
<td>Missing info.</td>
<td>1. Information about blood needed for operation cannot be found and has been misplaced. Not explicitly noticed.</td>
<td>Nurses.</td>
<td>Senior scrub nurse asks nurse to find it before the operation starts.</td>
</tr>
<tr>
<td>Denial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runaway</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Organisational linkage, system breakdown | 1. Bed not available for patient.  
2. HDU bed not available – discussion between surgeon and anaesthetist about what they should do.  
3. Bed not ready in recovery. | Nurse  
Aneast/surg  
Recovery nurse. | Staff are confused about what to do – see above. Discussion ends abruptly and is dealt with later in the operation.  
Told to take their time transferring the patient. Delay in the process. |
| Physical dangers          | 1. Draft in theatre 7 causes risk in the theatre so the door is locked permanently. | Nurse. | Potential emergency problems. |
Appendix B

Dissemination of Study Findings

Peer reviewed journals

Papers accepted for publication


McDonald, R., Waring J. and Harrison, S. At the cutting edge? Modernisation and nostalgia in a hospital operating theatre department. *Sociology* (in press).


Papers submitted for publication

Waring J., McDonald, R. and Harrison, S. Safety And Complexity: Inter-Departmental Relationships As A Threat To Patient Safety In The Operating Department submitted to *Journal of Health Organisation and Management*.

Other study outputs


Conference presentations


‘Balancing risk, that is my life’: the politics of risk in a hospital operating theatres department’ Paper to be presented at the British Sociological Association Risk & Society Annual Conference, UK, September 2005.


The Changing Face of Hospital Medicine in Britain: A Hospital Operating Theatre Case Study. Paper to be presented to European Sociology of the Professions Annual Meeting. 1 April 2006, Bremen, Germany.
References


