Failsafe Organizing?

A Pragmatic Stance on Patient Safety

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English Summary

This inquiry is about patient safety. More specifically, it is an inquiry into the relationship between the contemporary patient safety policy programme *and* the structures of medical reasoning, the conduct of healthcare professionals, and the character of the clinical situation that it seeks to influence. The international programme, which has become increasingly dominant since its inception by the American Institute of Medicine Report *To Err is Human* (Kohn et al. 2000), is built equally on a number of political rationalities and specific technological solutions. As an ideology, the programme introduces new ways of talking about and acting upon medical error. Under the headline of systems thinking, organizational learning, and 'non-blame', errors are now described as 'adverse events' or 'critical incidents' and the clinician is understood as the second victim of the error, of which the patient is the first victim. These efforts are closely linked to the technical ambitions of the programme, which involves the introduction of non-sanctioning incident reporting systems, incident analysis tools, and a wide range of safety systems and procedures that are all conceived of from a dominating idea of preventability: The idea that by diminishing variation and increasing standardization, the risk of error can be eliminated and errors can be prevented. In this way, the programme can be said to be dominated by an organizational myth of failsafe systems. By adopting 'a pragmatic stance' and via fieldwork conducted in Danish healthcare settings, this dissertation tracks and challenges the key assumptions on which the programme and its dominant myth are founded.

Inspired by John Dewey's notion of inquiry, the dissertation is divided into three parts. In the first part, the constituents of the problem under inquiry are laid out: the

patient safety programme on the one hand, and the clinical situation on the other, that is, a situation characterised by the situated and fallible character of medical reasoning and acting, as well as by the challenging moral demands of the clinician. In the second part, I attend to the key assumptions of the programme and seek to address, in different ways, tensions between the programme and the clinical situation it seeks to reconfigure. In this way, I address, *firstly*, the presupposition that medical culture is traditionally a blame-culture, where the common reaction to error is one of pointing fingers and firing people. By attending to empirical studies of medical errors conducted before the inception of the contemporary safety programme, attention is drawn to informal structures of co-collegial safety regulation and management, and it is suggested that the common reaction to error is not one of blame and shame but rather one of understanding and forgiveness. *Secondly*, I challenge the dominant presumption of the possibility of risk-elimination. In looking to the unintended organizational effects of the programme, the analysis renders probable, on the programme's own terms so to speak, that risks are redistributed rather than eliminated. *Thirdly*, I inquire into the programme's conception of learning and the argument that because of the inherently unchangeable and fallible nature of humans, we must attend to systems learning through system improvements rather than individual learning. In addressing how habits, intuitions, and experiences of the clinicians are vital in safety critical situations, the systems perspective on learning is challenged by a notion of learning as the formation of intelligent habits. *Lastly*, I contest the reliance on *a priori* organizing principles, which dominates contemporary approaches to safety management. Built on the idea of organizational reality being relatively stable, the current safety programme promotes standardization as the one best way of organizing. Recently, critiques of the standardization tendency have made a call for addressing the uncertain and changing characteristics of organizational reality,

whereby attention is drawn to resilience and adaptive capacities as organizational principles. Although opposites, the key assumptions of these alternatives are strikingly alike, and I suggest that they both risk paying little attention to the particularity of the clinical situation. In the final part of the dissertation, I make a case for a more situation-based and pragmatic stance on patient safety management. By putting forward three axioms, (1) take point of departure in the clinical situation; (2) be cautious about ideals of risk elimination through system improvements; and (3) preserve the importance of existing practices, habits, and experiences, I suggest a possible alternative to the current patient safety vocabulary – or, from a pragmatic stance, a different set of propositions with potentially formative effects.

Empirically, this dissertation is primarily based on observational studies and interviews conducted in a medical centre at a Danish university hospital. Methodologically and analytically, it is inspired primarily by the pragmatic method and philosophy of science of John Dewey; however, it evokes a number of other analytical sources throughout to build its arguments, including work from practical and empirical philosophy, organization studies, medical sociology, Science and Technology Studies, safety literature, and Foucauldian studies of government. These different sources help, in dissimilar ways, to shape the pragmatic attitude developed throughout this dissertation to account equally for the characteristics of medical reasoning and acting; for the dissertation's analytical and methodological choices; and for the presented alternatives to current approaches to safety management.

Dansk resumé (Danish Summary)

Denne afhandling omhandler patientsikkerhed. Mere specifikt er det en undersøgelse af forholdet mellem patientsikkerhedsreformer i sundhedsvæsenet på den ene side og den medicinske rationalitets strukturer, de sundhedsprofessionelles handlerum og karakteren af den kliniske situation, som disse reformer forsøger at påvirke og bearbejde, på den anden. En række politiske rationaler og konkrete teknologiske løsninger udgør tilsammen det, der kan betegnes som det internationale patientsikkerhedsprogram – et program, som er blevet stadig mere dominerede siden dets lancering med det amerikanske Institute of Medicine's rapport *To Err is Human* (Kohn et al. 2000).

Som ideologi præsenterer programmet en række nye principper til at tale om og bekæmpe fejl i sundhedsvæsenet. Under rubrikker som systemisk tænkning, organisatorisk læring og 'non-blame' bliver fejl nu beskrevet som 'utilsigtede hændelser', og klinikeren fremstilles som det andet offer for den fejl, hvis første offer er patienten. Denne retorik er tæt knyttet til programmets tekniske elementer som primært består af ikke-sanktionerende rapporteringssystemer til rapportering af utilsigtede hændelser, metoder til hændelsesanalyse samt en række specifikke sikkerhedsprocedurer og fejlreducerende systemer. Programmets elementer kan alle forstås ud fra en overordnet forestilling om muligheden for forebyggelse af fejl. Det vil sige ideen om, at man via introduktion af standardiseringer og en forventet medfølgende reduktion i praksisvariationer kan reducere risikoen for og dermed forebygge fejl i sundhedsvæsenet. Man kan således sige, at en myte omkring fejlsikker organisering præger programmet og dets teknologier. Gennem udviklingen af et pragmatisk standpunkt (*stance*) samt via empiriske undersøgelser foretaget i det

danske sundhedsvæsen undersøger og udfordrer denne afhandling den række af grundlæggende antagelser, hvorpå programmet og dets dominerende myte er funderet.

Med inspiration fra John Deweys pragmatiske metode og ikke mindst hans beskrivelser af undersøgelsen (*inquiry*), er afhandlingen opdelt i tre dele. Første del fremlægger delelementerne af det undersøgte problem, dvs. patientsikkerheds-programmet og den kliniske situation, hvoraf sidstnævnte helt overordnet er domineret af den medicinske rationalitets situerethed samt de moralske krav, der stilles klinikeren. I afhandlingens anden del undersøges sammenhænge mellem de to delelementer. Afhandlingens primære analytiske kapitler beskæftiger sig således med patientsikkerhedsprogrammets grundlæggende antagelser samt med de spændinger, der findes mellem programmet og den kliniske situation, som det forsøger at rekonfigurere. Derved beskrives *for det første,* hvordan programmet er funderet på en forestilling om, at den medicinske kultur er præget af en individorienteret tilgang til fejl, hvor sanktioner, fyringer, skyld og skam er de naturlige reaktioner på kritiske hændelser. Denne forestilling bliver modstillet med en analyse af tidligere empiriske studier af medicinske fejl, som samstemmigt peger på en række uformelle strukturer for kollegial vurdering og regulering af fejl – mekanismer som helt overvejende er præget af forståelse og tilgivelse. *For det andet* stilles der spørgsmålstegn ved programmets ideal om risikoeliminering. I en analyse af de uintenderede organisatoriske effekter af patientsikkerhedsprogrammet vises det, på programmets egne præmisser så at sige, hvordan risici ikke blot elimineres men også redistribueres. *For det tredje* skildres programmets dominerende forestilling om den menneskelige natur som ikke blot fejlbarlig men også uforanderlig, hvorved der argumenteres for at lærings- og forandringsambitioner nødvendigvis må rette sig mod systemet frem for mennesket. Gennem en analyse af hvordan klinikerens vaner, intuitioner og erfaringer har betydning for skabelse af sikkerhed, sættes der

imidlertid spørgsmålstegn ved, hvorvidt det systemiske perspektiv på læring er tilstrækkeligt, og en forståelse af læring som udvikling af 'intelligente vaner' diskuteres. *Til slut* udfordres den påberåbelse af a prioriske organisatoriske principper, som dominerer herskende forestillinger om patientsikkerhed. Det dominerende patientsikkerhedsprogram ser den organisatoriske virkelighed som stabil og fremhæver standardisering som dets primære organisatoriske princip. Modsat denne løsningsmodel peger nyere kritikker af standardiseringstendensen på usikkerhed og foranderlighed som grundvilkår, hvormed begreber som robusthed, modstandsdygtighed og tilpasningsevne bliver fremhævet som de væsentlige organisatoriske principper. Selvom disse perspektiver på skabelsen af sikkerhed er modsatrettede, viser det sig ved nærmere eftersyn, at deres grundlæggende antagelser er overraskende ens, hvilket bl.a. for begges vedkommende medfører en manglende opmærksomhed på særegenheden ved den konkrete kliniske situation.

I den sidste del af afhandlingen anskues patientsikkerhedsproblematikken fra et situationsbaseret og pragmatisk standpunkt, hvormed tre aksiomer præsenteres for at understrege nødvendigheden af at (1) tage udgangspunkt i den kliniske situation, (2) være varsom omkring risikoelimінerings- og systemforbedringsidealer samt (3) bevare fokus på eksisterende praksisser, vaner og erfaringer. Disse aksiomer skal betragtes som et muligt alternativ til det eksisterende patientsikkerhedsvokabular eller, fra et pragmatisk synspunkt, et sæt af propositioner med potentielt formative effekter.

Empirisk er afhandlingen primært baseret på observationsstudier og interviews foretaget i et medicinsk center på et større dansk universitetshospital. Metodologisk og analytisk er afhandlingen særligt inspireret af John Deweys pragmatiske metode og videnskabsteori, men samtidig bringes en række andre studier i anvendelse gennem afhandlingen bl.a. i form af kilder fra praktisk og empirisk filosofi,

organisationsteori, medicinsk sociologi, Science and Technology Studies, sikkerhedslitteratur samt Foucault studier. Disse kilder bidrager på forskellig vis til at udvikle det pragmatiske standpunkt, som gennem afhandlingen ligeligt benyttes til at beskrive den medicinske rationalitet og handlen, afhandlingens analytiske og metodologiske valg samt de præsenterede alternativer til dominerende patientsikkerhedsforestillinger.

Content

Preface: Where is the Patient?

In recent years, patient safety has emerged as an important topic and organizational concern in healthcare. Standardized safety technologies such as incident reporting systems and root cause analyses have been implemented worldwide as part of an international patient safety policy movement. At the same time, a blame-free rhetorical strategy has been set in place to promote a 'learning culture' amongst healthcare professionals. This dissertation explores the effects of the patient safety programme. It is not, however, specifically about the effects of patient safety policy for the safety of patients. Rather, it is about the unplanned and often invisible reconfigurations of healthcare organization and practice, that is, the subtle changes in the conduct of healthcare professionals and the clinical situation, which is occasioned by the introduction of patient safety technologies and rationalities in healthcare. Moreover, I am inquiring into the unintended effects of the strong and unequivocal standardization agenda characteristic of the safety programme, as well as of the many other recent reform programmes in healthcare. Because of this focus, promoters of the safety policy agenda have argued that I "forget the patient" in my analysis. They explain that patients will benefit from the fight against errors and variation: "Any patient must receive the same treatment no matter who is on call" is a main argument for introducing more checklists, guidelines, and standard operating procedures. Thus, they find that to focus upon the inner workings and dilemmas of the patient safety programme ignores what they feel are its undisputable virtues.

To respond to this critique up front, I will turn shortly to my personal situation. During the writing of this dissertation, my mother was diagnosed with incurable cancer from which she recently died. This situation has provided me with a much

unwelcomed insight into, and closeness with, issues of patient safety and medical errors from the perspective of the patient. Although I am generally convinced that my mother received competent and good care, in her encounter with the Danish healthcare system, she experienced a number of questionable incidents connected to the safety and quality of her treatment. These were incidents ranging from communication problems, logistic issues, long waiting times, lack of information, an instance of mistreatment resulting in chronic pain, and a few devastating incidents of poor professional judgment or perhaps simply incompetence. I suspect that anyone with a long and intensive acquaintance with the healthcare system is likely to experience similar unpleasant incidents and outright errors to a more or less severe degree, and the large amount of studies that have been conducted since the 1990's on the scale of the problem seem to back up this suspicion (e.g., Davis et al. 2002; Leape et al. 1991; Kohn et al. 2000; Schiøler et al. 2001). It has been argued that errors, mistakes, and critical incidents are to some extent inevitable or even normal, which has to do with the inherently uncertain nature of medical work (Paget 1988; Bosk 2003) and the complexity of the organization of healthcare (Perrow 1984). These characteristics should, however, not stop us from trying to decrease the likelihood of such incidents and, in that respect; I completely agree with the patient safety agenda: Patient safety is an extremely important issue and the question is not if we should address it, but how.

This is a hard question to answer primarily because what characterised my mother's case, and many like hers, is the heterogeneous nature of the incidents and the multiple reasons for their occurrence. Of these, a great deal are about a lack of resources like time, money, space, equipment, etc.; some of the incidents are systemic, that is, they are due to the interaction of system components, which could not necessarily have been foreseen (Perrow 1984); some are due to human factors such as stress, fatigue, and inattention (Reason 1990). Certain incidents are due to

deviant practices and routines, which have become normalized (Vaughan 1996). Others again are instances of mistaken decisions, that is, reflective and competent decisions that later turned out to be wrong (Paget 1988). And some are, as already mentioned, due to incompetence, inexperience, or even negligence (Rosenthal 1995). Finally, many are mixtures of the above features, and most are difficult to even define, categorize, and not least manage.

This dissertation enquires into relations between the diverse and situated nature of safety issues in healthcare and the univocal organizing principles of mainstream patient safety management that go under the banners of 'standardization' and 'non-blame'. And here is seems that although variation is indeed sometimes the enemy, and hence standardization the solution, it is not always so. Again, my mother's case can help illustrate this point. The cancer treatment programme that she was quickly admitted to, and the standardized treatment steps it provided, were not always to her advantage. Being young, healthy, and vigorous, my mother was not the average colon cancer patient and because of this, her case could have been an opportunity for trying out some of the experimental, yet well-established, treatment programmes offered in other Danish hospitals. Although the reasons for refraining from such experimental treatments were, I believe, of both a professional and an economic kind, it seemed that the standardized treatment programme to some extent became a pretext for not seeking the best treatment option in my mother's case. It became the safe solution, but perhaps not the optimal one. This dilemma points to one of this dissertation's main arguments: That by creating an increasingly more standardized healthcare system, we risk undermining the conditions for context-specific and situation-based reasoning in clinical practice, which sometimes means more variation not less. It further points to another challenge related to contemporary safety and risk management efforts: Sometimes appropriate action requires running a risk.

Regarding the second key principle of the safety programme, the principle of 'non-blame', my personal story might again serve to illustrate the risk of relying upon predetermined, 'universal' organizing principles in the name of safety. Discounting the smaller critical incidents my mother experienced, one serious problem of incompetence and perhaps even negligence stands out in my mother's story; one which might have changed her destiny. This problem of incompetence concerns my mother's general practitioner, who on several occasions ignored her mentioning of significant symptoms, as well as her tainted family history, and assumed her to be a hypochondriac right until the day when she demanded to be hospitalized, after which the hospital doctors gave her one year. It would seem that in order to rightfully address this particular incident one can and should ask questions of competence, responsibility, and blame.

I have always believed it to be risky and at times somewhat distasteful to instigate a piece of research by reference to a personal story like my own. I therefore sincerely hope that this preface does not stand as a sentimental, confessional, or prejudiced exercise to the reader, or even worse, that my dissertation appears as a vendetta against my mother's doctors in particular or the medical profession in general – a profession which I, as I hope this dissertation will testify to, deeply appreciate and admire. I have chosen to begin my dissertation on a personal note because my mother's case raises more generic question about how we approach and choose to deal with issues of error and safety in healthcare. And how our contemporary approach to safety management is likely to have important, and potentially problematic, unintended consequences, not only for the organization of medical work and professional responsibility, but equally for the quality and safety of the treatment of patients. As such, care for patients is very much at the heart of this dissertation.

PART I

1. Introduction: On Problems

At the medical centre of the large Danish university hospital where I did the primary fieldwork for this dissertation in 2010, a number of incidents had been reported about a rare but serious problem: During the administration of (liquid) medication for oral administration (PO), the mixture would get injected into the patient's veins (IV). This is a potentially grim situation, as the medication's effect is boosted when injected directly into the veins. This situation is also a perfect example of the type of human errors at the centre of attention for recent patient safety efforts in healthcare; namely, slips due to so-called human factors such as inattention, fatigue, or stress (Reason 1990). Mainstream patient safety literature argues that these kinds of 'cognitive' errors are inevitable in human work; they are part of 'the human condition', so to speak (Kohn et al. 2000). It is therefore proposed that systemic and technical solutions and safety-fixes should minimize the risk of human factor errors. In line with the arguments made by the safety programme and initiated by the hospital's patient safety representatives, it was decided that a new device should be

introduced, namely, a special syringe for oral administration. As a result, there was now one kind of syringe for intravenous therapy and another for oral administration. The goal was to make it impossible for the individual healthcare worker to make mistakes by closing the hole in the safety net, so to speak, and by designing the system to 'protect' the patient from human slips.

As one might expect, however, things are not quite so simple. In the above case, a great number of organizational problems followed the introduction of new syringes. First, a storage problem emerged: As there was no central storage space in the hospital for the new syringes, they had to be stored at each clinic. Despite this being a problem in itself, it equally led to a new problem: A technical problem. As the syringes were not stored in main storage, they could not be handled via the normal order-system, but had to be ordered separately. This was inconvenient and increased the risk that they would not be ordered at all. Moreover, a new patient safety problem was added: When a patient fed by tube is to receive PO medication, the syringe is normally attached to the tube; however, the new syringes were expanding the tubes with the result that, on a number of occasions, the patient's gastric contents fled out. It was therefore suggested that new tubes should be introduced to fit the new syringes. However, this led to an economic problem: The only tube on the market that could fit the new syringes was thirteen times more expensive than the original tube. Therefore another – and less ideal – solution was chosen: A (cheap) transfer pipe had to be added to the PO syringes every time they were attached to a tube. This created additional problems related to the introduction of transfer pipes. Other problems, which I have not yet touched upon, are described by the medical centre's quality coordinator:

> "Well, there've been a great many people involved in those oral syringes; many who are working at getting it introduced. We had to choose a system which could give us regular deliveries but only one company in

> Denmark could deliver them. This is a different company from the one that makes the tubes. And the regional working groups are also split up in one for syringes and one for tubes, and I don't know how the coordination is between them. So well, it's uphill, so to speak, and I think actually this example illustrates some of the really big challenges in relation to patient safety."

Such 'big challenges' not only refer to the high number of unanticipated difficulties following from the specific safety solution, but also to the unavoidable question of prioritization that follows. Because, on top of the coordination and delivery problems that the quality coordinator touches upon, the quote also points to a more overall problem of prioritization: Could the enormous number of man-hours going into the introduction of PO syringes have been used better?

A final problem should be added to this extensive list of problems: The so-called culture problem, which is also often what the term 'implementation problems' implies; namely, the issue of getting the healthcare professionals to use the PO syringes. Here, the little red transfer pipe, which had to be added to the new syringe when used for the tubes, did not make the case easier. First, using the pipe complicated the work task of connecting syringe with tube. Second, the old syringes (now meant only for IV injections) could still be used (without a transfer pipe) for the tube, and, as such, the safety programme's ideal of creating fail-proof systems seems to have failed (so as to minimize the risk of human error). In spite of these difficulties, the safety representatives at the centre initiated a strong cultural change agenda by which they succeeded in getting most nurses to use the new syringes. And from this perspective, the introduction of the PO syringes was a great success; the PO syringes were successfully implemented. As a patient safety representative, who played an important role in the introduction of the syringes, emphasized:

> "Success story no. one is those damn PO syringes. It's the most successful experience we've had, because it's has moved something, and they are being used now, and people can see the sense of it. So in many respects it's a great success. There are still some that do not use them, but eight out of ten employ them now, and I'm more than satisfied. We cannot expect it to be a one hundred per cent success."

Moreover, after the introduction of the syringes, the medical centre had not received any incident reports on PO-IV mix-ups. As such, the efforts have apparently been successful in solving the initial safety problem, taking into account of course that not every mix-up is likely to be reported.

When two colleagues at the same medical centre of the same Danish university hospital can characterise the same case so differently, on the one hand as illustrating "the really big challenges in relation to patient safety" and on the other as "the most successful experience we have had", it undeniably bears witness to a deep ambiguity regarding the notion of 'success'. In terms of 'implementation' at the clinical level, the initiative was a success; the nurses started using the syringes, and the risk of mix-up between PO and IV medication seemed to have been reduced as a consequence. In terms of the large number of problems that followed the introduction of the syringes, the success of the initiative is immediately more questionable. In this way, the case with which I begin this dissertation has at first sight a rather simple message: When trying to solve one problem, perhaps successfully, new problems are likely to be introduced. Having touched upon storage, technical, economic, coordination, delivery, prioritization, culture, and implementation problems, it is indeed fair to say that the case points to exactly such problem redistributions. What is equally obvious is the variety or, if you wish, complexity of the unintended organizational effects. The case indicates that while the 'cultural problem', i.e., getting the healthcare professionals to change their behaviour, is predominantly

stated as *the* 'barrier' for 'implementation' of safety policies, such statements are likely to cover a wider range of difficulties of which the 'cultural challenges' only capture one part. The case is, moreover, not only about redistribution of problems in general, but also more specifically a case about the redistribution of risk and safety hazards. It shows that fixing one safety issue might create new patient safety threats – connected to the use of tubes, running out of syringes, etc. From this perspective, it might well be that we cannot choose not to have problems or safety risk. We can, however, do our best to determine the character of the problems we face and to decide, as best as possible, between scenarios of different kinds of problems in specific cases. By seeking to determine and discuss the character and effects of problems produced by recent patient safety initiatives and rationalities in healthcare, this dissertation intends to contribute to such decision-making processes.

On the most general level, the problematic of this dissertation, of which this case is an illustration, builds on traditions of studying management technologies with an interest in their constitutive or 'performative' effects on organizational life. These traditions, in particular Science and Technology Studies and Foucauldian governmentality studies, have, in different ways, stressed how management technologies shape actors, decisions, and organizations in invisible, unintended, and often unpredictable ways. This focus is in line with the pragmatic attitude of this dissertation, where the practical effects of dispositions are given primary attention. The general point about redistribution, of which the PO-syringe case is an illustration, has been developed in different forms by a great many authors from different research traditions, and it is these authors whom this dissertation is, in one way or another, inspired by and indebted to. From one of the grand old men of safety research, Charles Perrow, sounds a warning of the danger of trying to manage safety issues by quick technological fixes, as such solutions might increase complexity and reduce slack in the organizational setup and thereby aggravate the

type of accidents happening (Perrow 1984). From a slightly different perspective, researchers working within Foucault-inspired governmentality studies, most prominently perhaps Michael Power, have described how dominant obsessions with risk management have led to the rise of certain second-order risks: the risks of risk management, so to speak (Power 2004, 2007). Within Science and Technology Studies, the unintended effects of introducing risk, safety, or standardizing technologies into healthcare have been studied widely – not least in terms of possible redistributions of work and attention (e.g., Berg 1997; Bowker and Star 1999; Strathern 2000a, 2000b; Vikkelsø 2005).

The argument of this dissertation, and of many of the aforementioned inspirational sources, is not only that the introduction of management technologies creates new problems and risks, but equally, that certain types of technologies create specific *kinds* of problems. These problems are largely due to the assumptions on which the programme is built and the particular logic of safety management that is introduced into healthcare practice and organization due to these specific assumptions – with consequences not least for habits, routines, conduct, competence, and responsibilities of the healthcare professional. To illustrate this, we might for a moment turn from the easily detectable problems listed in relation to the syringe case, to the less visible effects of the programme on clinical work itself and on conduct of healthcare professions. Let us take a closer look at the initial problem the PO syringe is supposed to solve: Although it is the duty of nurses to check the label on any medication before they administer it to a patient, this procedure might not be carried out for a variety of reasons. In this way, the chances that medication will be administered incorrectly increase, i.e., that medication for oral administration might be injected into the vein. A good guess would be that before the safety agenda had reached Danish healthcare, this problem would have been addressed as a problem of competence or skill and dealt with by the training of nurses. With the

new paradigm, however, training is labelled as a 'weak safety solution', as it is directed at changing 'the human condition' rather than creating systemic changes. One might therefore reasonably reflect on what happens to the problem of competence when the new system based on such assumptions about safe organizing and human conduct is in place. Could it be, for instance, that with the PO syringes in place, the nurse at the bedside is even less likely to check the label of the medication before injecting it?

To support such a possibility, another version of the same dilemma should be brought forth. During research at the hospital, I was made aware of an alternative variant of the mix-up scenario, now between intramuscular (IM) and intravenous (IV) medication. As with PO medication, it is a serious affair if strong medication that is supposed to work from the muscle (IM) is injected directly into the vein (IV). At the paediatric clinic where I did most of my observational studies, this was particularly articulated as a safety issue when children were handed over for surgery. Since the nurses at the surgical clinic normally only administered intravenous medication, mix-ups were more likely to happen here than at the paediatric clinic. The reason for this difference, I was told, was to be found in the paediatric nurses' substantial experience and routine in administering a great variety of medication, which was why the vital procedure of always checking the label on the medication before its administration was more well-established here. In other words, because of great experience and training in these matters, the nurses had a high degree of skill and competence in administering medication.

The possibility of mix-ups between IM and IV medication casts new light on the PO-syringe initiative. Although this new safety system might reduce the mix-ups happening between PO and IV medication, it does not solve the IM/IV dilemma. It might even have the opposite effect. If one follows the logic of this added case, the

introduction of PO syringes could risk increasing the possibility of IM/IV mix-ups: When reducing the risk of PO/IV mix-ups, you might equally reduce the chances of the checking routine being maintained. Put differently, there is a risk that the nurses, with the new safety system, will become more prone to forgetting to check the medication before they administer it, thereby increasing the risk for IM/IV mix-ups. Although this particular outcome is based on guess work, it is well known that safety systems might give a sense of security as well as lower elements of discretion to such an extent that alertness to risks is reduced. From this perspective, which brings the competences, experiences, skills, habits, and routines of the nurses to the forefront, possible redistributions of patient safety risks are not the only relevant issue to be addressed. Rather, one might reasonably ask what happens to the duty of nurses to check medication before administering it when safety systems are installed that ideally make such routines unnecessary. This draws attention to the importance of addressing the patient safety programme's key assumptions, which pervade the safety system and the PO-syringe solution. We need to ask how such assumptions affect responsibly, duties, roles, medical experience and competence in healthcare. How is the clinical situation changed when standardized safety systems are by principle preferred over solutions that involve the development of competences, responsibilities, intelligent habits, and discretionary powers of the healthcare professional?

1.2 Alternative voices on patient safety

Although admittedly sparse, the assumptions and effects of the current patient safety programme have in recent years received more attention from social scientists and organizational theorists with ambitions of studying safety and safety management in healthcare in ways different from the mainstream approaches. This attention has resulted in alternative strands of patient safety research, a set of "new

approaches to researching patient safety" (special issue of *Social Science and Medicine* 2009) with a particular emphasis on 'A Socio-cultural Perspective on Patient Safety' (the title of an anthology edited by Rowley & Waring 2011).

A majority of these studies are linked to research within Science and Technology Studies (e.g., Jensen 2008; Jerak-Zuiderent 2012; Zuiderent-Jerak et al. 2009,), and some to Foucauldian studies of government (e.g., Waring 2007a), to institutional theory (e.g., Doods & Kodate 2011), to discursive and narrative theory (e.g., Iedema 2007; Waring 2009) and so on. Although differences in theories and research traditions sometimes play a role in the level of analysis, choice of methodologies, critical tone of voice, and, perhaps most importantly, style of writing, I believe that by reading through these studies there is more common ground than disagreement overall. Another and perhaps more fruitful way to group the alternative patient safety approaches is to then look to the variations in the particular study objects. Here, I suggest that two main tendencies can be detected: First, one cluster of studies is involved in describing the safety programme and its main assumptions and rationalities on a more or less general level. Such research involves, for instance, the identification of conflicting logics of accountability and learning in safety policy (Dodds and Kodate 2011); an investigation of the use of social science conceptualizations in the construction of the programme (Jensen 2008); a classification of the quality and safety movement's different subfields (Zuiderent-Jerak and Berg 2010); or, from a discursive perspective, the overall dilemmas involved in introducing risk management and blame-free rationalities in healthcare (Lloyd-Bostock and Hutter 2008). A second cluster of studies looks more closely at medical practice and the clinical situation, either by showing how the requirements of the safety programme are somehow translated or resisted in the clinical context or how risk and safety are enacted in medical practice (e.g., Jerak-Zuiderent 2012; Iedema et al. 2006; McDonald et al. 2005; Mesman 2008, 2009, 2011; Waring &

Bishop 2010; Zuiderent-Jerak et al. 2009). By focusing specifically on medical practice and how medical practice resists certain forms of managerial efforts, much of this literature works towards addressing alternatives to the present safety paradigm. These two strands of literature, the characterising analyses of the programme and its dispositions and the inquiries into enactments of safety and risk in medical practice, are both very significant and have served as inspiration for the present dissertation. However, combinations of the two aspirations are rarely seen and as such, studies on the *relations* between the assumptions on which present safety policy hovers *and* medical practice, clinical reasoning, and medical experience (what I choose to describe as 'the clinical situation') are fairly uncommon. Particular characteristics of the programme and its effects on practice have, however, been addressed. For instance, questions have been asked as to what happens to the practice of medicine and clinical experience when non-medical knowledge of safety engineering regulates medical performance (Waring 2007a; Zuiderent-Jerak & Berg 2010). Also, the blame-free initiative's effects on traditional responsibility structures in healthcare have been articulated (Collins et al. 2009; Wachter & Pronovost 2009). Furthermore, the schism between the programme's one-sided focus on errors has been discussed in relation to more positive perceptions of safety that are closer to clinical practice (Mesman 2008, 2009, 2011). This dissertation builds on these and other empirical and analytical suggestions with a view to produce a more overarching argument on these matters.

1.3 The contours of an empirically-motivated research problem

The empirical situations described above and the unresolved tensions of these situations have motivated this dissertation and its ambitions. Such cases introduce a need, or perhaps even an obligation, to inquire into the problematic of the situation at hand. In undertaking this task, certain inspirational sources need mentioning. As

it will become clear throughout this dissertation, the dominant source of inspiration is American pragmatism, and not least John Dewey (1859-1952). However, as already mentioned, this project also consults other sources including certain practical philosophies, medical sociology, Science and Technology Studies, as well as governmentality studies and Michel Foucault, all of which have, on different levels, motivated, framed, inspired, or provoked the formation of this study. Many of these sources overlap in their general attitude to and engagement with the objects of research. In a recent piece, Paul Rabinow points, for instance, to an important similarity between John Dewey and Michel Foucault, namely, their emphasis on the significance of the problem. As Rabinow puts it:

> "Both agreed that thinking arose in the context of problems such that the work of thought for both proceeds by way of working through and working over problems. Both affirmed that thinking arose in problematic situations; that it was about clarifying those situations, and that ultimately it was directed towards achieving a degree of resolution of what was problematic in the situation." (Rabinow 2011: 11)

Moreover, both Foucault and Dewey believed that there were important reasons for engaging in research; there were certain stakes involved, so to speak. Such "stakes involved something experiential and entailed a form of logic (or in Foucault's later vocabulary a mode of 'veridiction'), in which the thinker could not help but be involved" (Rabinow 2011: 11). This dissertation aligns itself with these ambitions in two important ways. First, it shares a primary concern with the problematic. As such, this project is inspired by the Deweyan ambition of inquiring into problematic situations with the aim of achieving, in Rabinow's words, "a degree of resolution of what is problematic in the situation" (Rabinow 2011: 12). Second, this dissertation shares the sense of being driven by an experiential and somewhat intuitive 'logic' or necessity. It shares the belief that there are indeed stakes involved and that "[t]here

is no such thing as disinterested intellectual concern" (Dewey 1938:115). As such, this dissertation's aspiration is normative.

To Dewey, the crucial and often dominant part of an inquiry consists in defining the problem and its constituents. Following this line of reasoning, it is not necessarily meaningful to copy a typical research strategy where the problem, formulated as a concise research question, is presented in the introduction. Rather, this dissertation should be read as an attempt to cast light on 'the problem' of patient safety from a number of different perspectives with the result that hopefully, by the end of the inquiry, I will be able to say something more generic on this problematic as well as point toward some of the types of critiques and solutions that are available. The two most important constituents of such analysis, which help focus the inquiry, can be determined as, on the one hand, contemporary patient safety management; that is, patient safety policy, technology and work, introduced within the general frame of the international patient safety programme and its ideological and technological constituents. And on the other hand, the specificities of the clinical situation, that is, the uniqueness and particularities of medical practice, reasoning, experience, and competence, which are under transformation due to the dominant managerial efforts. In this way, this dissertation investigates the relations and tensions between the patient safety programme and the clinical situation. It investigates how the programme's assumptions about organizational reality, professional conduct, and medical error affect the clinical situation, not only through the redistributions of risks but also through subtle, invisible, and often unintended transformations of responsibility structures and the particular modes or ways of the clinician.

1.4 Outline and structure

Inspired by John Dewey's account of the different stages of inquiry, this dissertation is divided into three parts, comprising ten chapters in total. *Part I* explores the elements or the constituents of the problem under inquiry, by turning to the patient safety programme on the one hand, and medical reasoning and the clinical situation on the other. Of these, *Chapter 2* introduces the patient safety programme, its governing rationalities, formalising technologies, main assumptions, and its wider connections to other related management regimes and quality movements. Moreover, I provide a definition of the programme that accounts equally for ideological elements, such as its systems thinking and blame-free rhetoric, as well as its technological devices, which are primarily for reporting and analysing critical incidents.

Chapter 3 consists of a conceptual and analytical framing of clinical experience, medical reasoning, and the clinical situation. The chapter introduces a number of practical philosophies that have all used medicine as an exemplary case of practical reasoning. From Aristotle's notion of medical reasoning as *phronesis*; to Dewey's use of medicine as an illustration of pragmatic method; to contemporary revivals of casuistry and the obvious affinity between this case-based medieval method for solving ethical disputes and the physician's reflection on cases in his diagnosis and treatment of patients; as well as to Foucault's study of the birth of the modern clinic, which paved the way for a particular combination of clinical perception and thick medical description of individual cases. Additionally, I deliver a definition of the clinical situation, which I use simultaneously to characterise the unique, situated, and undividable character of medical practice contained in the Deweyan notion of the situation, as well as that which is specifically clinical about it, that is, for instance, the provisional character of medical knowledge, the inseparable connection between

knowing, acting, and possibly affecting other's lives, and the resulting moral status of medical work.

I round off the introductory part of this dissertation by presenting its analytical and methodological strategies in *Chapter 4*. Inspired by American pragmatism, the specific approach of this dissertation is described as 'a pragmatic stance'. The notion of 'stance' indicates a certain attitude or commitment to the empirical field and the problem at hand (Van Frassen 2002). A stance is not a theory nor is it a strict methodology; instead, it describes a certain pragmatic way of looking at and approaching the study object, which entails, for instance, a certain constructive epistemology; an attention to the problem and the method of inquiry; a view on theory as conceptual tools; and not least a steady focus on practice, context, and the situation at hand. The more general discussions of the pragmatic stance are combined with specific reflections of the empirical research design, choice of theories, and methodological tools, as well as the selection of data in this dissertation's empirical study of two Danish healthcare settings: elderly care units in a municipality and a medical centre at a large university hospital.

In *Part II*, I proceed with the inquiry's main analytical chapters. In each of these, I attend to one of the key assumptions of the patient safety programme and investigate, following somewhat different strategies, how it relates to, affects, or clashes with the clinical situation, as well as to the effects of these relationships. *Chapter 5* attends to the key assumption that medical culture is dominated by a culture of 'naming, blaming and shaming', which is also described in mainstream safety literature as a dominant distinction between the so-called person and system approaches to safety. Based on an analysis of significant empirical studies of medical error and safety culture conducted before the inception of the present safety programme, the image of a person-centred and blame-inducing culture is

fundamentally contested. Rather, an informal, delicate, and gentle ecology of co-collegial observation, classification, and management of different sorts of errors and mistakes is identified. Here, the uncertain, time-dependent, and fallible character of medical knowledge and the resulting vulnerability of the healthcare professional are shown to have the effect that incompetence and negligence are sometimes hard to identify; a problem not of too much blame then, but perhaps too little. By rearticulating traditional modes of error management within the professional community the chapter functions as an introduction to, and a frame for, the remaining chapters.

In *Chapter 6*, I turn to another dominant assumption of the programme, namely, its faith in the possibility of risk elimination, and I seek to show that rather than being eliminated, risks and problems are likely to be redistributed. The chapter identifies four different kinds of unintended problems and organizational effects resulting from the introduction of the patient safety programme in healthcare: classification risk, second-order risk, standardization risk, and responsibility risk. It is further argued that all four of these risk categories can be linked to the highly principle-based nature of the present programme, which is likely to reduce the possibility of addressing safety issues from a more situation-based approach.

I proceed in Chapter 7 by addressing the concept of learning promoted by the patient safety programme. Here, a main presupposition of safety management concerns the idea of the co-called human condition, a notion used by mainstream safety research and patient safety literature to describe human slips and cognitive failures as part of an 'unchangeable human nature'. This understanding of the human condition is used as an argument for focusing on systems learning and system improvements independently of specific experiences, skills, and habits of the healthcare professionals. In discussing a critical incident concerning a hospitalized

pregnant women, as well as the subsequent root cause analysis (a standardized method for dealing with grave incidents), it is noted how crucial intuitions and hunches of the personnel were overruled. A new view on learning is subsequently introduced with reference to Dewey, who argues for learning as a formation of intelligent habits. Through the empirical case and Dewey's framing of learning, an alternative to systemic learning theory is presented that re-establishes habits, intuitions, and experiences as primary in learning situations.

In *Chapter 8*, two dominant approaches to safety management are discussed, and it is argued how they both tend to work with *a priori* definitions of golden organizational principles. The current patient safety programme's ideals of organizational reality as stable, and medical errors as preventable, predetermine standardization as the preeminent solution to safety issues. Opposed to this tradition, the so-called new way within safety research and organizational theory presents safety as a question of resilience, that is, as the ability to adapt to and be flexible in relation to ever-changing, unstable, and complex surroundings. The chapter argues that although immediately opposite these two positions are also strikingly alike, as they are both highly interventionist, principle-based positions, which endorse system improvements in the quest to create ultra-safe systems. And these similarities might explain why the two are increasingly combined in safety management. By analysing a medication error occurring during the production of paediatric chemotherapy, as well as the solutions proposed by the root cause analysis process, it is shown how principles of standardization and flexibility are unproblematically mixed. The chapter ends by discussing how attempts to overcome the standardization/resilience divide might end up reproducing the divide. In conclusion, and to set the scene for the inquiry's final part, Charles Perrow is cited for a more situation-based perspective on safe organizing and for suggesting a more subtle and mutually constituent relationship between rules and discretion, standards and flexibility.

In the final part of this dissertation, *Part III*, I round off the inquiry by suggesting some sort of resolution as to the problem of the situation under inquiry. In *Chapter 9* an 'alternative' in terms of a pragmatic and situation-based stance on safety management is put forward, which seeks to go beyond some of the most dominant other alternatives as these are rhetorically often built on a dichotomizing tendency. By introducing an empirical case of the introduction of emergency teams in the studied hospital, as well as three contemporary authors who, from different positions, have argued for a more situation-based approach to safe organizing, the contours of an alternative are presented. The chapter ends by presenting three axioms that should, from a pragmatic stance, be understood as working hypotheses to be tried out as well as in terms of their performative potentials: (1) Take point of departure in the clinical situation; (2) be cautious about ideals of risk elimination through system improvements; and (3) preserve the importance of existing practices, habits and experiences.

Chapter 10 articulates a few more general reflections about the safety programme and its constitutive effects. By reference to Foucault's account of how particular reorganizations of healthcare paved the way for the 'myth of the clinical gaze', I indicate how recent reorganizations might institute a new myth of failsafe systems that radically challenges the constituents of the clinical situation, as well as the competences, experiences, and practical reasoning of, and the ethical demands to, the clinician[1].

[1] I use the term clinician to account equally for nurses, physicians and other healthcare professionals trained to work in the clinic.

2. Constituents of the Patient Safety Programme

During the first six months of my PhD fellowship, I conducted a pilot study for The Danish Institute for Health Services Research[2]. The aim of the study was to investigate the character and understanding of 'adverse events'[3] (the patient safety movement's preferred word for medical errors) in primary care. The pilot study was conducted just as the Danish Patient Safety Act – which since 2004 had made it mandatory for healthcare professionals in hospitals to report adverse events – was to be expanded to include primary care in 2010. The Danish Society for Patient Safety, the main driver behind the introduction of patient safety policy in Denmark,

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[2] The Danish Institute for Health Services Research (DSI), now part of The Danish Institute for Local and Regional Government Research (KORA), has co-financed this PhD project. As part of this arrangement, I conducted a pilot study of 'adverse events' in elderly care units (Jensen and Pedersen 2010).

[3] While the English 'adverse events' most often refers to harmful outcomes of medical treatment not related to the patients illness (e.g., Kohn *et al.* 2000) the Danish translation 'utilsigtet hændelse' is used, mostly, to determine equally those unsafe situations, which potentially can lead to injury and those that actually does. In this way, the Danish notion is more equivalently to the English notion 'critical incident' which is the background for my preferred use of this term throughout the dissertation.

was the financing partner behind the pilot study; however, the society had mentioned concerns as to whether researchers, who were not knowledgeable in patient safety methods and ideas, could be trusted to do research on adverse events. As a compromise, a one-day crash course in 'patient safety' was arranged for my colleague and me at the society's headquarters. This course was my first acquaintance with the 'the patient safety perspective'. Leaving the meeting that summer day in 2009, I was convinced that patient safety management was indeed a relevant case.

A number of details caught my interest. For one, the enthusiasm of the people working with patient safety immediately struck me. This enthusiasm, I came to learn, was not only a distinctive trait of the society's employees; it was also apparent at the university hospital (where I did the main part of the fieldwork for this dissertation during the first half of 2010) and, from my experience, it characterises almost everyone engaged in 'patient safety work'. Often these people are referred to as 'ildsjæle' in Danish: fiery or igniting souls; that is, people who are passionate about, engaged with, and attached to the patient safety policy agenda, and who are working hard and energetically to promote its ideology, key principles, and programmatic rhetoric, as well as its specific technologies. And it is indeed hard, at first, to see what there is not to be enthusiastic about. Patient safety, like quality, is initially something everyone can agree on as valuable; as something to believe in and fight for. And if one is to believe the numerous reports that have been published internationally on the magnitude of the problem, there is more than enough to do to improve safety in healthcare. In the USA, The Harvard Medical Practice Study showed that harmful adverse events happen to 4 per cent of hospitalized patients (Brennan et al. 1991; Leape et al. 1991). This initial study was followed by similar studies in other Western countries, where it was found that in average every tenth

hospitalized patient experiences an adverse event (Davis et al. 2002; Schiøler et al. 2001; Vincent et al. 2001; Wilson et al. 1995).

The enthusiasm, however, did not only manifest as a genuine interest in the safety of patients, but equally in an incredibly strong faith in the safety programme, its specific technologies, its characteristic rhetoric, and its overall ideology. This faith was the second characteristic that caught my interest. Taking the strong enthusiasm into account, the patient safety programme is not just the average quality reform in healthcare. Rather, it has, at least in the Danish case, succeeded in becoming internalised to a very large extent. Doing patient safety work is not merely another work task; it means adopting a world view, an ideology entailing a set of key assumptions, arguments, and specific techniques concerning how to talk about and act in accordance with the programme's requirements. Doing patient safety work implies what we, after Foucault, have become accustomed to referring to as a subtle form of self-discipline. And as one would expect, becoming 'disciplined' in the patient safety perspective could not be achieved on a one-day crash course. It was especially the rhetorical strategies that seemed to cause us trouble. The characteristic way of saying 'adverse event' or 'critical incident' and not 'error' or 'mistake' was easy enough to grasp, although the term caused our informants considerable confusion when we made them reflect upon its meaning in our pilot study. However, as it turned out, this was not the only rhetorical change of importance. In a mail-correspondence with the Danish Society for Patient Safety, related to the approval of the final report, a critical comment on the draft concerned our use of words:

> "It is *very* important that the author's terminology corresponds exactly to the language that has been developed over the past 5-10 years, which means a lot to the development of patient safety culture. So please use the word *report* and not notify, declare, register, etc." (Original emphasis)

The argument behind this statement, and the wider logic behind the term 'patient safety culture', is that in order to make healthcare professionals more inclined to talk about errors, it is necessary to shift focus from individual wrongdoing to systemic errors. Accordingly, words with 'negative' connotations, that is, words associated with individual responsibility or blame, should be replaced by neutral or 'systemic' terms. In its most extreme form, the rhetorical consequence of this is that a healthcare worker is not the 'cause' of errors but the 'second victim' of 'adverse events', the patient being the first victim (Wu 2000).

2.1 Danish healthcare and patient safety policy

The healthcare sector in Denmark is primarily state financed. Danish hospitals are run by five national regions, while 98 Danish municipalities run the primary care. After the publication of the American Institute of Medicine's *To Err is Human* (Kohn et al. 2000), Denmark was one of the first countries to set patient safety on the health political agenda. A Danish pilot study conducted in 2001 found that nine per cent of patients are harmed as a consequence of medical error during their admission within the Danish hospital-system (Schiøler et al. 2001). The study received both public and political attention and by the end of 2001 the Danish Society for Patient Safety was formed: a non-profit organization consisting of representatives from a wide range of healthcare stakeholders. In January 2004, the Danish Act on Patient Safety was adopted, which obliged healthcare professionals in Danish hospitals to report errors or adverse events to a national incident reporting system. Denmark became the first country to introduce mandatory reporting on a national scale, and can in this way be defined as pioneering in the patient safety area. From 2010, the safety act has been expanded to include healthcare workers in the primary sector, including homecare, elderly care, GPs, etc. Moreover, it has since then been possible for patients to report incidents. The

reporting system is intended solely for learning, and health personnel cannot be sanctioned for reporting incidents. As such, the act's extraordinary §201 establishes that: "A health person who reports an adverse event cannot as a result of that report be subjected to investigations or disciplinary actions by the employer, the Board of Health or the Court of Justice"[4]. Most other safety initiatives such as specific technologies, guidelines, or projects are decided upon locally by for instance the region or the individual hospital. However, most initiatives are indirectly guided or directly managed by the Danish Society of Patient Safety, which, in its own words, "gathers, spreads and develops knowledge and initiatives" and plays a dominant role in ensuring "that patient safety aspects are a part of all decisions made in Danish healthcare"[5]. In this way, the society has become a powerful factor in enforcing the safety programme, as well as a strong driving force in ensuring a high degree of standardization across the local environments. Today, safety technologies such as the root cause analysis, a standardized procedure to analyse critical incidents of a particularly serious character, is an established procedure in Danish hospitals, although it is not mandatory by law.

Finally, it should be noted that the safety programme's incident reporting system, and its agenda on learning, is only one of three systems for the governance of medical errors in Danish healthcare, which also comprise a system for patients' rights and complaints as well as a system for patient insurance and compensation. In 2011, the National Agency for Patients' Rights and Complaints was formed to administer both the incident reporting system and the patient complaints system. As a result, an interesting merger of two, up till then, parallel and quite

[4] See the Law on Health, Act No 288 of 15/04/2009.

[5] http://patientsikkerhed.dk/en/ (Retrieved 29 June 2013)

incommensurable policy paradigms has been initiated with the result that the agenda on learning and systems thinking has spread from the safety programme to the complaints system, which is now increasingly thought of from a general perspective of preventability. Concretely, this has resulted in a new obligation to make sure that knowledge gained not only from reported incidents but also from complaints and liability suits is used preventatively. Moreover, the extremely individualised complaints system, which the blame-free attitude of the new safety programme is partly a reaction to, has been loosened, and it is now possible to complain about medical treatment without directing the complaint against a particular healthcare professional.

2.2 Patient safety work in context

As our crash course and the mail correspondence indicated, it takes work to change worldviews, a lot of work. It takes campaigns, courses, conferences, and seminars; it takes careful training in talking about and doing patient safety work in 'a systemic way'. And it takes the management of anyone who clings to the 'old' language of negligence and medical error, including stubborn physicians, researchers such as myself, and not least the press and the public. On top of the ideological work, so to speak, it takes just as much 'material' work to introduce and manage the specific safety technologies and methodologies. This large amount of work has occasioned the introduction of a new profession in healthcare, namely, that of patient safety representatives and risk managers, who, together with the Danish Society for Patient Safety, are the promoters of the new regime in the Danish context. In this respect, it is fair to say that the patient safety programme has succeeded. As the annual Danish patient safety conference, with more than five hundred participants, bears witness to: a new profession has been established. In hospitals all over Denmark, root cause analysis processes are conducted, as well as safety audits and a multitude of specific

safety methodologies mostly of US origin with names such as Global Trigger Tool (retrospective review of patient records), Early Warning Score (observational method to detect emergency signals), SBAR (safe communication tool), Waste Identification Tool (for the screening of ward sections for waste of resources), and so on. As for the incident reporting system, more than 150.000 adverse events were reported to the Danish Patient Safety Database in 2012 (National Agency for Patients' Rights and Complaints, 2013). In sum, the patient safety agenda has become institutionalised in the Danish healthcare system.

While the specificities of the programme, with its outspoken ideological ambitions and language-control elements, are somewhat unique in the healthcare context, the programme connects to a number of recent trends within safety engineering, quality movements, risk management and public sector reform. Thus, its specific technologies and systemic ideals are highly inspired by, in most parts directly imported from, safety engineering in areas such as occupational health, or so-called high-risk industries such as aviation and nuclear power. These are industries that have utilised human factors research and safety engineering in their design of safety systems and practices for decades. Concretely, the general constellation of blame-free reporting systems as a way to enhance safety is imported from aviation (Kohn et al. 2000). Within the healthcare arena, the safety movement is connected to a large number of overarching international health quality reforms. The two management regimes, safety and quality, are not only overlapping in terms of their highly related aims of improving patient care and patient experience, but equally in terms of some of their specific technologies, such as audit processes, as well as their general dispositions towards standardization, centralisation, accountability, and so forth. Quality and safety agendas are in fact so closely related in certain areas that they are often not separated in practice. As such, it is often the same people who do patient safety and quality work at the organizational level, and patient safety is

frequently represented as a subcategory of quality, as is the case with the newly introduced Danish accreditation system, the Danish Healthcare Quality Programme, or DDKM.

On the wider public sector scale, the patient safety reform agenda can be coupled to the series of public sector reforms that often go under the term New Public Management (Hood 1989; Pollitt 1994). The term is commonly used to describe the implementation of a wide range of managerial public sector reforms from the late 80's and onwards in a number of Western countries. Although NPM is defined in numerous ways, it is most often characterised by a "stress on the importance of management and 'production engineering' in public service delivery, often linked to doctrines of economic rationalism" (Hood 2001: 12553). Returning to its specific objective, the safety paradigm can be understood as part of the recent 'risk management explosion' (Power 2004), taking place across public organizations and industries. An increasing tendency to "re-envision[ing] organizations in terms of risk" (Power 2007: vii) has led to a new governance regime, where the management of uncertainty and control of risk, with the goal of reducing the chances of error through risk management, has come to the forefront. The safety programme can equally be linked to trends within evidence-based medicine as well as to any other standardization, accountability and audit movement in general, or to the growth in self-monitoring technologies in particular. In extension to these logics, the safety agenda is increasingly being explicitly coupled to an economic optimisation logic, as the demands for healthcare services are constantly rising in a situation of decreasing public funds and ageing populations, which has led to attempts to stabilize or reduce health expenses in many countries, including Denmark. Although the optimisation logic has been evident from the outset, the outspoken purpose of reducing costs as a result of introducing safety management tools is permissible and even encouraged today. As such, the safety agenda is increasingly coupled directly

with LEAN management and other optimisation strategies under headings such as "Is it Possible to Reduce Waste and Improve Patient Safety Simultaneously?" (Session, Danish Patient Safety conference, 2011) and "More Health and Less Errors at a Cheaper Price" (Session, Danish Patient Safety conference, 2012).

The enthusiasm and faith that initially caught my interest are also not unique qualities of the policy reform. It has been argued that recent programmes of public sector reform implicate a certain 'ethics of enthusiasm', where employees in the public sector are expected to 'internalise' and identify with particular policies to become "committed champions for and enthusiastic advocates of those policies" (Du Gay 2008: 336). Within the patient safety movement, this particular ethics is largely maintained by a certain 'either you are with us or you are against us' rhetorical strategy. As already indicated, the backdrop of the programme's ideological ambitions is a strong narrative concerning the opposition between what is, for instance, referred to as the 'old way', the 'failed paradigm', the 'blame-and-shame mindset' versus 'the new model', 'the new paradigm', 'an open culture', 'a blame-free mindset', and so forth. (see for instance Woodward et al. 2009).

These characteristics, the enthusiasm, the strong ideology, the radical dismissal of 'old ways', and the highly principle-based character of the 'new views', are all traits which have made researchers refer to the safety programme as an orthodoxy (Waring 2009). In this way, it is perhaps not by incident alone that I have been accused or applauded (depending on the perspective) for "swearing in the church" at patient safety conferences. The 'movement' inevitably has a certain likeness to religious convictions; a likeness that is additionally enforced by the daily reference to the Danish Society for Patient Safety as '*The* Society', as well as by its very strong and charismatic director and front figure.

2.3 *To Err is Human* and primary assumptions of the safety programme

It is almost impossible to find more recent literature on patient safety that does not refer to the American Institute of Medicine's *To Err is Human: Building a Safer Health System* (Kohn et al. 2000), which has functioned as the general frame of reference for the safety movement in a number of ways. First, it established the importance and magnitude of the problem by suggesting that between 44.000 and 98.000 Americans die every year as a result of medical error. Second, *To Err is Human* laid out the direction for the establishment of a new way of approaching errors and safety management in healthcare. Even the title of the report points to some of the most dominant assumptions and organizing principles of the agenda. For one, the title puts focus on a specific notion of *human error*, known especially from human factors research, where errors caused by cognitive failures, slips, inattention, etc., are addressed with a view to reduce the possibility of errors through system improvements. In *To Err is Human*, the important inspiration from human factors research is laid out as follows:

> "Much of the work in human factors is on improving the human–system interface by designing better systems and processes. This might include, for example, simplifying and standardizing procedures, building in redundancy to provide backup and opportunities for recovery, improving communications and coordination within teams, or redesigning equipment to improve the human–machine interface" (Kohn et al. 2000: 63).

The safety programme's main methodology of collecting and analysing critical incidents derives from human factors research, as a way "to understand where the system broke down, why the incident occurred and the circumstances surrounding the incident" (Kohn et al. 2000: 63-64). Until today, the idea that safety should be

tackled as a question of system improvement to remove the possibility of human error is probably the most dominant and overarching of the key assumptions on which the programme is built.

Moreover, the title *To Err is Human* implies that mistakes and errors must be approached as an inevitable human characteristic, as part of the so-called human condition. It is human to fail, as in evitable and largely excusable, and it therefore does not make sense to point fingers at each other. This argument is built on the assumption that the most common response to error in healthcare is to approach individuals by blaming and perhaps firing someone. In contrast, the so-called blame-free approach is suggested, where the causes of error – including the human causes – are understood and should be addressed as essentially systemic. Obviously, this is where the use of blame-free rhetoric (adverse events, second victim, etc.) fits into the picture[6]. To summarize, in *To Err is Human*, two highly related arguments were presented as the basic assumptions for the new safety paradigm: Human error must be solved via systemic solutions and in close connection; safety management needs to go from a 'blame' paradigm to a blame-free approach.

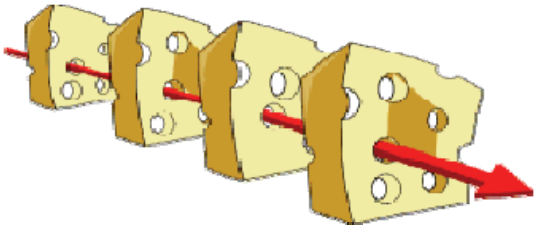
These arguments, and the movement from a so-called 'person' to a 'system' approach, had, amongst other sources, been introduced by cognitive psychologist James Reason (1990, 1997, 2000), and it was, at the time of *To Err is Human*, already a widespread method of approaching error management in other industries, especially aviation. Moreover, a number of pioneering texts by, for instance, Lucian

[6] It is to be noted that two simultaneous and potentially inconsistent strategies are in play here (Jensen 2008). On the one hand, it is argued that it is essentially human to make mistakes; human nature (especially human cognition) is full of flaws, and we therefore need safe systems to 'protect' us from human error. On the other hand, and with reference to, for instance, Charles Perrow (Kohn et al. 2000: Chapter 3) it is argued that errors are predominantly caused by failing systems (and not human nature). While the first line of reasoning dominates the programme's standardization strategies, the second predominantly helps legitimise its blame-free approach.

Leape, one of the movement's most influential founding fathers, had laid out the advantages of thinking in terms of system improvements in healthcare before the Institute of Medicine report (e.g., Leape 1994, 1997). It was, however, not until *To Err is Human* that the new patient safety programme was inaugurated as an international policy movement.

Although research within patient safety is often described as poor or 'not yet fully developed' (Grol et al. 2008: 336), what could be considered as mainstream patient safety literature does, nevertheless, amount to a considerable cluster of work. This work can, following Justin Waring (2009), roughly be divided into three research areas: First, an area concerned with the nature, level, and measurement of clinical risk; second, a strand of research interested in the management of 'culture'; and third, a large group of studies concerned with implementation and evaluation of safety improvement initiatives. Of this large body of mainstream patient safety literature, the vast majority somehow aligns with the general ideas and ambitions of *To Err is Human*. By adopting such primary assumptions about the nature of errors and safety, as well as an overall belief in a 'measure and manage strategy' (Waring 2009) as being useful for increasing safety and reducing errors in healthcare, most mainstream literature and research within the patient safety area can be characterised as being "unquestioning and uncritical of the prevailing policy orthodoxy, typically seeking to endorse and facilitate its implementation" (Rowley and Waring 2011: 3). Therefore, although it has been extremely difficult for the patient safety movement to prove the positive effects of the programme (Grol et al. 2008; Jensen et al. 2010), most safety literature supports the safety movement's 'measure and manage' orthodoxy, where it is believed that risks and errors can be objectively measured and managed via technical control systems (Waring 2009).

A final, significant element of the safety agenda also needs to be presented: During the research for this dissertation, I attended a large number of patient safety conferences, seminars, and educational events, and, on these occasions, it soon became obvious how a specific type of rhetoric as well as a small number of statements and illustrative figures and models are repeated at any given opportunity in order to promote the programme's main assumptions. Most important here is perhaps a highly significant illustration that, better than most conceptualizations, comprises the programme's view on safety and error management: The Swiss cheese model inspired by James Reason's *Human Error* (1990)[7].



This model of accident causation illustrates the system as slices of cheese, where the holes in each slice represent weaknesses (latent conditions/failures) in parts of the system. When the holes align, an error- or accident opportunity arises. Viewed from

[7] The Swiss cheese model is built on an illustration from *Human Error* (1990), where Reason shows 'the dynamics of accident causation'. In the figure-text, it is stated that "the diagram shows a trajectory of accident opportunity penetrating several defensive systems. This results from the complex interaction between latent failures and a variety of local triggering effects. It is clear from this figure, however, that the chances of such a trajectory of opportunity finding loopholes in all of the defences at any one time is very small indeed" (1990: 208). In this way, Reason's argument, although the figure indicates a rather static environment, stands in close relation to Charles Perrow's normal accident theory (1984). The argument of complex and perhaps even unpredictable failures has, however, been translated into an idea about a few detectable root causes/latent failures, which can be annulled through rather simple system improvements or technological fixes. And the figure from Reason's text, which includes latent failures at the managerial level, local triggers, intrinsic defects, atypical conditions, physiological precursors, and unsafe actions are most often turned into a much more basic illustration of a few pieces of cheese and an arrow.

this perspective, error management becomes, figuratively speaking, about closing the holes in seemingly stable systems. This illustration of safety improvement points to another chief presumption of the programme; namely, the principle that every attempt should be made to eliminate risks and errors in order to create systems that are as failsafe as possible. Today, it is hard to come by a textbook, conference, seminar, or training session in patient safety where this model of error management is not displayed. And it is equally difficult to have a conversation with healthcare professionals involved in the safety agenda without the cheese model being mentioned, either directly or through the use of derived terms such as safety-nets, safety gaps, loopholes, and so on.

Apart from the Swiss cheese model, a number of other strategies are used to illustrate and support some of the programme's chief assumptions. In particular, perhaps, the idea of the 'unchangeable human condition' or the 'flawed human mind'; a message inspired by human factors research's focus on errors caused by, for instance, cognitive slips and inattention. I was presented with this message for the first time at a one-day educational programme for patient safety coordinators (who are responsible for the implementation of patient safety initiatives, administering incident reporting, and so on, at the clinic level). In line with the 'to err is human' argument, the course leader initiated his presentation by pronouncing: "The most important question is this: How can we deal with the fact that we are humans and humans make mistakes?" Subsequently, 'human flaws' were illustrated through a number of psychological gimmicks. A slide with the text "Paris in the the spring" (one 'the' too many) is shown to the participants with the result that an overwhelming number of them read the sentence without noticing the extra word. Another slide in this genre is shown where the participants are to read a text and count the number of f's, with the anticipated outcome that most suggest a number considerably lower than the actual sum of f's. As a final illustration of the flaws of

human cognition, a short movie is shown and the participants are asked to count the number of passes made in a basketball game. Afterwards, it is revealed that a person dressed as a gorilla went through the basketball court[8]; however, just as expected, most of the participants did not notice this fact, as they were too focused on counting. I later experienced these three demonstrations of mental flaws, as well as a few similar ones, repeated at other patient safety events. After these demonstrations, the abovementioned course leader concluded: "We see what we want to see and we read what we want to read. That is the human condition and there is no escape from being human. Therefore we need systems, which assure that we are not making mistakes." On the course leader's PP-presentation a few quotes from some of the safety movement's founding figures are used to back this argument up, one from James Reason stating that "we cannot change the human condition, but we can change the conditions under which humans work", and a second from Lucian Leape declaring that "human beings make mistakes because the systems, tasks and processes they work in are poorly designed". The result of this exercise is a chart on how best to reduce error starting with the least effective, which is defined as *handling* error. Here, measures such as training and instructions are included. *Facilitating* error, where 'doing the right thing is made easier' and 'doing the wrong thing is made harder', is introduced next as a more effective way of dealing with errors than handling errors. Lastly, and in agreement with the Swiss cheese argument of error-prevention, the *most* effective measure is the *elimination* of error, where the risk of error is removed. Hence, two primary roads to safety are highlighted on the very last slide of the talk: *standardization and simplification*. These axioms point to the last major presupposition of the programme that needs

[8] http://www.theinvisiblegorilla.com (Retrieved 29 June 2013)

mentioning; namely, the tendency to forward standardization as the best way of organizing – independently of clinical context.

Based on these observations of main strategies of the programme, it is possible to summarise some of the programme's key assumptions, which are all related to the overall ideal of creating failsafe systems via systemic improvements: First, the assumption that errors in healthcare carry along blaming, shaming and individual witch hunts, indicating why a blame-free perspective is needed. Second, the assumption that the optimal way of achieving safety is by the elimination of errors and risk. Third, the assumption that the human mind is essentially and unchangeably flawed, indicating why safety management should strive to improve the system than counting on individuals' ability to improve. Fourth, the assumption that standardization is the one best way of solveing, potentially, any safety problem you might encounter. In Part II of this dissertation, I inquire into each of these assumptions and their engagement with the clinical situation. Before going into what constitutes this situation, a definition of the term 'patient safety programme' is in order.

2.4 Patient Safety Programme: A definition

Struggling to find a fitting phrase to comprise current patient safety reforms, the rationalities on which they are built, and the technologies and procedures by which they are enacted, I have ended up favouring the term 'programme'; although I often also use terms such as agenda, approach, regime, paradigm, or movement. It should be noted, however, that this term of phrase attracted the following harsh comment in a review of a paper based on one of the chapters in this dissertation:

> "The most critical flaw on which the paper commences concerns the notion of an "international patient safety program". There is no evidence

> to suggest that such an entity exists and secondly if it does (but it does not) that it is a consistent, unified program across countries."

From one perspective, the reviewer is right. International patient safety work is not completely unified across countries. As is always the case with 'travelling technologies' (Nielsen 2010), they are to a varying degree, locally adjusted and translated when introduced into the medical setting. Being that I still dare to maintain 'programme' as an adequate notion after the reviewer's critique, it is, I believe, a question of explanation and definition.

First, it must be noted how the patient safety policy agenda has become institutionalised, not only in Denmark as described above, but in the Western world at large, and increasingly in developing countries as well – and how this process has occurred through quite explicit and coordinated efforts. WHO has, since the launch of The World Alliance for Patient Safety (WHO 2004), been an important player in this institutionalisation by explicitly aiming "to coordinate, disseminate and accelerate improvements in patient safety worldwide"[9]. Today, WHO is behind, amongst other initiatives, the development and spread of various global campaigns, training programmes, global focus areas such as infections, safe surgery and patient involvement; guidelines and manuals for reporting systems and other safety technologies; and checklists for hand-hygiene, surgery, childbirth, trauma, to name some. Apart from WHO, other important global players include the American Institute of Medicine, who set the agenda with *To Err is Human* (Kohn et al. 2000), the National Patient Safety Agency in Britain, The Australian Patient Safety Foundation Inc., which was established as early as 1988, Joint Commission (US and International), who serve equally as consultants on safety improvement's

[9] http://www.who.int/patientsafety/about/en/index.html (Retrieved 29 June 2013)

methodologies and increasingly include patient safety as indicators in accreditation systems, and so on and so forth. In fact, the list of patient safety organizations, including both governmental and independent organizations[10], is sufficiently comprehensive and the concept of a co-called PSO (Patient Safety Organization) so well established that it now appears as a separate article on Wikipedia[11]. These organizations, and the representatives of patient safety advocacy elsewhere, are working alongside WHO's ambition to coordinate, disseminate, accelerate, and, it should be added, homogenise and standardize, safety efforts around the world. As such, the same people give talks in patient safety conferences globally, using the same metaphors and illustrations to repeat the message and methods of patient safety. Standardized technologies are implemented, based on a few standards often developed by US health institutions or the WHO and inspired by other high-risk industries, especially aviation. Similar training-programmes have been established based on a globally used collection of arguments, texts, and labels so that becoming a risk-manager, for instance, involves performing similar functions and addressing safety issues with a similar mindset and collection of tools. This is not to say that these attempts are always successful or that there are no differences; it is not to say that such initiatives are not translated, reinterpreted, resisted, or even rejected locally. However, when returning to the reviewer's critique, I do believe that, taking the massive coordinated efforts into account, the present safety movement can

[10] It should be noted that patient safety regulation is predominantly run and coordinated by non-governmental organizations, such as the Danish Society for Patient Safety, although governmental organizations do play a role. As such, the safety agenda is a professionally-driven agenda, to a larger extent than the quality movement in general. One way to account for this difference is by addressing the fact that the agenda was not only launched as a reaction to the high number of medical errors in healthcare, but equally as a reaction, and an alternative, to the increasing number of medical negligence and liability suits (primarily in the USA). From this approach, the safety agenda has been a way for the medical profession to draw attention to the role of 'systemic' components in medical error.

[11] http://en.wikipedia.org/wiki/Patient_safety_organization (Retrieved 29 June 2013)

actually be determined as a rather 'consistent, unified program across countries'. This then leads to a more analytical discussion of how I define programme.

In Michael Power's work on the audit society, he claims that "audit is an idea as much as it is a concrete technical practice" (Power 1997: 5). As this introduction has illustrated, it is fair to say that the same goes for patient safety: It consists of, on the one hand, a few rather distinct presuppositions about the nature of humans, risk, order, and organizational reality; and, on the other, a number of concrete technologies, methods, and procedures which constitute the operational basis for 'safety practices'. This distinction has been articulated as a distinction between political rationalities and the body of technologies that render these rationalities operational (Miller 1990, 1991; Rose and Miller 1992). In "On the Interrelations between Accounting and the State" (1990), Peter Miller defines a governmental programme as precisely a process involving, on the one hand, "the field of rationales, statements and claims that sets out the objects and objectives of government, and that is termed "political rationalities" "(1990: 315), and on the other, "the range of calculations, procedures and tools that materialize and visualize processes and activities, and that is termed "technologies" "(1990: 315). These two aspects of government are, according to Miller, "linked in a relationship of reciprocity" (1990: 315).

For the purpose of this dissertation, the definition of a programme as including both normative/ideological and technological/operational elements is useful. It should be noted, however, that too much emphasis on the division between these features risks creating a false illusion of a natural split, where ideas are not technical and technologies are not normative. I have therefore been tempted by currently fashionable analytical concepts such as the French *dispositif* (Foucault 1980), often translated into *apparatus,* and defined as a system of relations between "a thoroughly

heterogeneous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical and moral propositions – in short, the said as much as the unsaid" (Foucault 1980: 194-195). And the connected notion of *agencement* (Callon 2007; Deleuze & Guattari 1980; Hardie & MacKenzie 2007), mostly translated into *assemblage,* which emphasizes that when certain "procedures, calculation tools, instruments, and technical devices collaborate and participate in a coordinated manner" (Callon 2007: 37), distributed agency is the result. From such analytical perspectives, it is the researcher's goal to "understand the various agreements, enacted procedures and standards, and other instituted beliefs and norms that are constitutive of the agencement" (Styhre 2011: 40). On the part of this dissertation, any of these conceptual choices would, each in their own way, accentuate how patient safety is a mobilisation of heterogeneous resources, and it would underline the contingent character of the relations between these resources, the performative effects of these relations, the close connection between materiality and agency, and much more. However, by using such analytical framing, I would equally run the risk of constituting patient safety as a theoretical construction based on certain post-structuralist presuppositions about the construction of reality, rather than as a thoroughly empirical phenomenon. Here, the much more neutral notion of programme seems to better fit my attitude, intensions, and temper. Although my employment of the term is stirred by its usage in certain Foucauldian inspired analytics of government, programme is also a commonly used expression, and with a quick dictionary search you will find definitions such as, "a plan or scheme of any intended proceedings (whether in writing or not); an outline or abstract of something to be done. Also: a planned series of activities or events; an itinerary" (Oxford English Dictionary), "a set of structured activities" (Wikidictionary), "a particular mindset or method of doing things" (Wikidictionary), or "a plan or

system under which action may be taken toward a goal" (Marriam Webster). A specific definition of a health programme, with focus on its long-term and multifaceted character, is also useful:

> "A description or plan of action for an event or sequence of actions or events over a short or prolonged period. More formally, an outline of the way a system or service will function, with specifics such as roles and responsibilities, expected expenditures, outcomes, etc. A health program is generally long term and often multifaceted, whereas a health project is a short-term and usually narrowly focused activity." (Last 2007)

Based on these various inspirations, I take the notion 'patient safety programme' to imply (1) a set of political and ideological rationalities introduced into healthcare under headings such as 'non-blame' and systems thinking; (2) a set of technologies and procedures, primarily connected to reporting and analysis of critical incidents; and (3) a complex set of reciprocal relations, fluent boundaries, and coordination between (1) and (2), by which activities are taken in a similar direction. The reciprocity is especially important to stress, as there is not necessarily any casual line from political rationality to its operationalization via technologies, and as such, there is no natural distinction between rationality as an end and technology as a means to this end. Rather, it is, in the case of patient safety, often the technology – specifically, the incident reporting system – that calls for a particular rationality as part of its enactment. Blame-free ideologies and systems rhetoric can, from this perspective, be seen as a means to support the introduction of incident reporting, or even as a way of operationalising the reporting system, and as such, the political rationalities are just as much tools as they are objectives, whereas the technology – the incident reporting system – becomes a political end in itself.

With these words on the patient safety programme, I now turn to the specific type of reality it is meant to engage with and transform; I turn to the specific characteristics of medical reasoning, the conduct of the clinician and the character of clinical work – what I, with a collective term, address as 'the clinical situation'.

3. On Medical Reasoning and the Clinical Situation

Having described some constituents of the contemporary patient safety programme, I now turn to some classic descriptions of the clinical situation and the medical mode of reasoning. This chapter presents a small selection of authors, specifically within ethics[12] and practical philosophy, who have presented medicine as a paradigmatic example of practical reasoning [13], and it discusses some particular features of the clinical situation as well as the character of medical knowledge. The purpose of this exercise is threefold: First, by introducing a line of philosophers as diverse as Aristotle, John Dewey, Stephen Toulmin, and Michel Foucault, all of who agree on several crucial characteristics of medical reasoning, it is indicated how the practising of medicine through time and across research traditions has been viewed

[12] It has even been argued, by the philosopher and trained physician Stephen Toulmin, that medicine has not only functioned as an adequate analogy to ethics but has even 'saved the life of ethics' (Toulmin 1982).

[13] Because of the different thinkers' dissimilar preferences, this chapter will change between notions such as practical wisdom, rationality, thinking, etc. It should, however, be noted that I understand the term 'reasoning' as broad enough to include most of these other terms.

as a practical and situated way of thinking and acting, closely connected to terms such as clinical experience, observation, medical training and competence, as well as detailed description. Second, this chapter generally functions as an introduction to later discussions, not least regarding the link between rules, situations, and judgment in clinical medicine in general, and in safety critical situations and questions of safety management in particular. Third, this chapter offers a definition of the 'clinical situation', the amalgamating notion I use to characterise the unique, undividable, fallible, and moral characteristics of clinical practice.

Let us, as an introduction to the question of medical reasoning, start by visiting a typical Wednesday morning conference at the medical centre where I conducted the main study for this dissertation. The paediatricians meet at 8 am as usual for the day's first conference. Today, as every Wednesday, a clinical case is presented for discussion. One of the younger paediatrician starts by referring to some general information about a patient's illness and reveals a few symptoms: The case concerns a five-year old child, who was admitted to the hospital because of four days of vomiting; the child shows signs of back stiffness. The paediatrician pauses and asks the room: "What do you think? Any suggestions?" One doctor suggests meningitis, another suggests septic shock. Relevant suggestions, the paediatrician implies, but not the correct answer. The paediatrician turns to the next slide, which shows the test results from the initial round of blood tests and the lumbar puncture. On the long list of test results, a few are of particular importance for the later diagnosis: One result shows that the lumbar puncture is clear, which rules out meningitis, but the CPP (Cerebral Perfusion Pressure, which measures the blood flow to the brain) is 825, an extraordinarily high number. Moreover, it shows that sodium is low, and calcium is high. The paediatrician asks again: "Does anyone have a suggestion?" There is a discussion in the room and a couple of suggestions. The doctor goes on to the next slide, where she describes the developments in the case; the following

day the patient's CPP is reduced to 290, and they are able to maintain the patient's conscious state. This information about apparent recovery seems to confuse the picture somewhat and it initiates discussion. The game of giving a few details and posing questions goes on for a couple of more slides, while colleagues debate possible diagnoses. A few now seem to be on the right track, but the answer is not revealed. Before turning to the last slide, the young paediatrician states that only the younger doctors are allowed to answer, while the more experienced doctors must now keep quiet. "When you see this, what is your reaction?" she asks and lists a number of symptoms and signs including greyish colour, fatigue, nausea, abdominal pain, and hypoglycaemia (low blood sugar). The older paediatricians obviously now know the answer, similarly, some of the younger paediatricians are also able to give a diagnosis: Addison's disease a very rare and severe illness due to acute adrenal failure. The session is over in less than ten minutes, and the conference moves on to discussions of logistics, the handing over of important information on newly hospitalized patients, and so on.

The above case illustrates what has traditionally been understood as the core of clinical knowledge and experience; namely, a particular kind of reasoning that is based on the observation and description of signs and symptoms in the individual patient. It also touches on a tension in medical knowledge that concerns, on the one hand, the ideals of general and scientifically-based knowledge, presented here in the form of the correct diagnosis, which consists of a number of clearly defined and describable signs and symptoms, and, on the other hand, the inherent uncertainty of the diagnostic process. This relates firstly to its temporality; the fact that an establishment of diagnosis is temporal insofar as the facts of the case, as well as the symptoms of the patient, are only to be established temporarily at any point in time, and secondly to its situated and case-based character; against the odds this particular patient, for instance, seemed to be shortly recovering in the days after the hospital

admission. From this perspective, accounts of medicine as, for instance, a "science of the individual" (Foucault 1994[1963]: 197) or "a science of the particular" (Goroviz & MacIntyre 1976) point towards the ambivalent relation in medicine between scientifically generalised knowledge and practical, partial, and circumstantial knowledge. In descriptions of medical knowledge, the weight placed on each side of this divide has varied over time, and whereas contemporary medical knowledge is often defined in scientific and evidence-based terms, medicine has, traditionally, been understood as a paradigmatic case of circumstantial knowledge and practical reasoning.

3.1 Medical reasoning as *phronesis*: Aristotle on practical wisdom

The tradition of practical thinking has its origins in Aristotle's *Nichomachean Ethics* (2000 [approx. 350BC]), which, perhaps due to Aristotle's father being a doctor, draws heavily on medicine and medical examples to illustrate the nature and methods of ethics (Jaeger 1957). When explaining, for instance, the insufficiencies in perusing the 'good-in-itself' when dealing with practical affairs, Aristotle agues "that apparently it is not just health that the doctor attends to, but human health, or perhaps rather the health of a particular person, given that he treats each person individually" (Aristotle 2000: 10, 1097a). Later, in the discussion of individualising education, he brings in another medical analogy: "For though in general rest and abstinence from food are beneficial for a person in a fever, presumably they may not be for a particular person" (Aristotle 2000: 202, 1180b). By bringing in a medical example, Aristotle wishes to cast light on the particular characteristic of what he determines as *phronesis,* practical wisdom, which is the intellectual capacity belonging to our practical life rather than to *episteme*, often translated as scientific knowledge, which is, to Aristotle, "distinguished by its objects, which do not admit of change; these objects are eternal and exist of necessity. More precisely, scientific knowledge

comprises demonstration, starting from first principles; the latter must also be known, although they are not known by demonstration" (Aristotle 2000: 1139b). In opposition to this, Aristotle argues that when dealing with practical reason:

> "[T]he accounts we demand should be appropriate to their subject matter; and the spheres of actions and of what is good for us, like those of health, have nothing fixed about them. Since the general account lacks precision, the account at the level of particulars is even less precise. For they do not come under any skill or set of rules: agents must always look at what is appropriate in each case as it happens, as do doctors and navigators." (Aristotle 2000: 25, 1104a)

In this way, practical reasoning – of which medicine is the paradigmatic example – is defined as a particular context-dependent way of knowing and thinking, which take point of departure in the particular case, is only meaningful or appropriate in relation to its specific subject matter, and is therefore never fixed: Knowledge based on practical rationality is time and space dependent.

The concept of *phronesis* has inspired most practice-based and empirical-oriented philosophies, and it has often been the starting point for discussions of clinical rationality. Of notable interest, Kathryn Montgomery has delivered a particularly thorough contemporary account of clinical judgment based on Aristotle's ethics. In *How Doctors Think: Clinical Judgment and the Practice of Medicine* (2005), she argues against the current dominant idea of medicine as a science[14]. Instead, she addresses issues of contingency, uncertainty, and circumstance in medical knowledge by invoking the concept of *phronesis* or practical reasoning as the "flexible, interpretive

[14] Montgomery stresses that 'science' at this point should be understood in its 'realist' version, based on ideals of invariable replicability, and not in line with more 'constructivist' understandings of science as they have developed over the last few decades in science studies (Montgomery 2005: 4).

capacity", which more than anything characterises clinical judgment (Montgomery 2005: 5). The misrepresentation of medicine as science and the ignorance of clinical judgment or practical reasoning as its "chief virtue" (2005: 6) have serious consequences, Montgomery argues, not least in relation to questions of failures and bad outcomes.

3.2 Medical reasoning as pragmatism: Dewey and pragmatic method

It has been argued that in Aristotle's 'situational' ethics and in his insistence on paying attention to the particularity of the case rather than sticking to universal rules and principles in practical matters, he has inspired American pragmatism and particularly perhaps the work of John Dewey (Pagan 2008). Like in Aristotle's writings, medicine is often a preferred example in Dewey's descriptions of pragmatic methods and reasoning[15]. But whereas Aristotle maintains the difference between the scientist's and the physician's way of reasoning (partly due to the way science was defined in antiquity), Dewey sets out to describe how research too is a practical endeavour based on pragmatic reasoning just like the practice of medicine. In this way, medicine had remained, all the way to the start of the 20th century, the example *par excellence* of a practical enterprise. The following quote is taken from a discussion on the role of theory in research, and it puts forth an analogy of the relationship between procedures and the physician's individual methods:

> "Take a case of a physician. No mode of behavior more imperiously demands knowledge of established modes of diagnosis and treatment than does his. But after all, cases are *like*, not identical. To be used intelligently, existing practices, however authorized they may be, have to

[15] The allusions to medicine are also visible in the writings of William James, who, most likely because he trained as a physician, uses the medical case quite consequently in his writings.

> be adapted to the exigencies of particular cases. Accordingly, recognized procedures indicate to the physician what inquiries to set on foot for himself, what measures to *try*. They are standpoints from which to carry on investigations; they economize a survey of the features of the particular case by suggesting the thing to be especially looked into. The physician's own attitudes, his own ways (individual methods) of dealing with the situation in which he is concerned, are not subordinated to the general principles of procedure, but are facilitated and directed by the latter." (Dewey 1916: 171)

In this quote on the particular relationship between earlier experiences, established procedures, and generalised knowledge on the one hand and the specific features of the individual case on the other, Dewey illustrates the pragmatic attitude to theories as tools, which are to be judged in relation to their operationality in concrete situations. The medical example is invoked to illuminate the point that in practice, procedures (or theories) are not followed mindlessly, because when "they get in the way of his [the physician's/researcher's] own common sense, when they come between him and the situation in which he has to act, they are worse than useless" (Dewey 1916: 172). If procedures are, to the contrary, used with discretion as tools to guide action, if the physician/researcher has "acquired them as intellectual aids in sizing up the needs, resources, and difficulties of the unique experiences in which he engages, they are of constructive value" (Dewey 1916: 172). He goes on to state: "because *everything* depends upon his own methods of response, *much* depends upon how far he can utilize, in making his own response, the knowledge which has accrued in the experiences of others" (1916: 172).

This discussion about the relationship between generalised knowledge, particular situations, and the individual's 'own response', or, in Aristotle's words, his practical wisdom, is often rearticulated in Dewey's work, for instance, in *Logic: The Theory of*

Inquiry (1938), where he thoroughly describes the difference between propositions and judgments. For the first of these, Dewey does not deny that propositions can be generic or universal; they are, he states, propositions of kinds, which are always of an 'if-then' structure: "Propositions about kinds are not about the individuals of the kind, but about a relation of characteristic traits which determine the kind" (Dewey 1938: 256). In opposition to the Aristotelian notion of *episteme*, being generic or universal does not mean unchangeable or fixed. Rather, universal propositions are also empirically-grounded, that is, they are based on practical experiences of previous conduct and inquiry, and, as such, propositions – no matter what kind – are always up for revision should future conduct require it[16].

> "It is clear that all principles are empirical generalizations from the ways in which previous judgments of conduct have practically worked out. When this fact is apparent, these generalizations will be seen to be not fixed rules for deciding doubtful cases, but instrumentalities for their investigation, methods by which the net value of past experience is rendered available for present scrutiny of new perplexities. Then it also follows that they are hypotheses to be tested and revised by their future working." (Dewey 1922: 240-241)

In relation to a specific case, propositions, i.e. theories, procedures, principles, etc., are always 'only' working hypotheses, which are to be tested in practice. By applying a proposition in particular cases, one can test "the force and relevancy of the universal proposition as a means of solution of the problem undergoing resolution" (Dewey 1938: 264). Hence, propositions are only meaningful as "formulations of

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[16] The idea that even the most generic of our principles, rules, and propositions are based on earlier experiences and are up for revision can also explain why Dewey prefers the notion 'warranted assertability' instead of truth. I will return to a discussion on pragmatic epistemology in next chapter, where I describe the pragmatic stance of this dissertation.

possible ways or modes of acting or operating" (Dewey 1938: 264); that is, in their ability to guide action.

In the description of universal and generic propositions, i.e., 'if-then' propositions, Dewey once again turns to medicine as an illustration. In the case of diagnosing two sick children[17], who happen to be neighbours, Dewey argues that one should turn to an analytical comparison between the two cases. However, this comparison is to be effected "by the operative use of a conceptual apparatus of if-then propositions: If diphtheria, then characteristic traits; if typhoid, then certain others; if measles, then certain others, and so on" (1938: 267). Hence, Dewey emphasizes with reference to a longstanding philosophical debate: "it is not denied that we infer from one case to other cases" (1938: 268); however, "such inferences have logical standing – or are grounded – only as the inference takes place through the mediation of propositions of the generic and of the universal form" (1938: 268). In this way, Dewey situates himself, as do the rest of the pragmatist philosophers, outside classic discussions about induction and deduction. Judgments, which are always *individual* since they are "concerned with unique qualitative situations" (1938: 283), are neither deductions from universal principles nor inductions from one case to another. Rather, a judgment such as the diagnosing act is *directed* by 'if-then' propositions through acts of what Dewey terms 'comparison contrast' (1938: 283), whereby the proposition's relevancy and usefulness is tested in practice.

With these discussions about the relationship between propositions, judgments, and individual cases, it becomes clear that Dewey's understanding of rules and procedures is quite complex, and it does not entail an 'either/or' position. Although it is primarily Dewey's more processual thinking which has achieved a contemporary

[17] The discussion of the case of two sick children is a comment to John Stuart Mill (1806-1873), who uses this particular example to account for his principle of induction.

revival, especially within postmodernist traditions, it is important to notice how a certain awareness of the necessity of stability in the form of rules, propositions, habits, earlier experiences, etc., are always present in his texts as that which forms particular 'ways or modes of acting'. It is Dewey's attitude then that "the choice is not between throwing away rules previously developed and sticking obstinately by them. The intelligent alternative is to revise, adapt, expand and alter them" (Dewey 1922: 239-240). I will now turn to contemporary advocates of casuistic methods as another scholarly community that has emphasised the intricate relationship between rules and context through the drawing of parallels between medical, legal, and moral reasoning.

3.3 Medical reasoning as case-based reasoning: The revival of casuistry

The use of medicine as a practical and pragmatic way of reasoning, where generalised and context-specific knowledge interrelate in certain ways, can also be found in Jonsen and Toulmin's *The Abuse of Casuistry: A History of Moral Reasoning* (1988), where medicine is used to illuminate "the complex and subtle ways in which theoretical and practical knowledge bear on each other" (Jonsen & Toulmin 1988: 37). In this significant piece of work, they set out to rehabilitate the tarnished name of casuistry or case-based reasoning; a method used to analyse individual cases by comparing them to paradigmatic cases or principles and originally employed for settling moral and legal disputes, which draws on Aristotle and was particularly popular among theologians in late medieval and early modern Europe. Casuistry has been hugely criticized as being equal to sophistry or moral relativism[18]; however, as

[18] Casuistry as a method for solving moral disputes was tarnished especially after Blaise Pascal's highly influential *Lettres provinciales* (*Provincial letters*), dated 1656-57, where he attacks casuistry and accuses the Jesuit casuists for moral sloppiness and laxity.

shown by Jonsen and Toulmin, this critique does not seem to do justice to the general intentions of the method, which is essentially about letting detailed descriptions of the case or situation under scrutiny be the basis of the mapping of similarities and differences to analogous cases, which then dictates the way forward.

In their book, which initiated a revival of casuistic and case-based reasoning and methods, not least in relation to medicine (Arras 1991; Jonsen 1996; Khushf 2004), Jonsen and Toulmin define clinical medicine as a professional practice with a close affinity to moral practice.[19] With reference to *Nichomachean Ethics*, they describe how "clinical knowledge requires what Aristotle calls "prudence" or *phronesis*: practical wisdom in dealing with particular individuals, specific problems, and the details of practical cases or actual situations" (Jonsen & Toulmin 1988: 37). In this way, they define clinical medicine as "the reflective use of medical judgment in dealing with the specific conditions of particular patients" (Jonsen & Toulmin 1988: 39). In line with the Deweyan argument, Jonsen and Toulmin use the medical example to discuss different strands of knowledge and their combination, and they suggest that medicine is based on a subtle mix of scientific or generalised knowledge, practical procedures, and the individual experiences and skills of the physician. The relationship between the latter two is described in this way:

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[19] Although Dewey blames casuistry for dealing with "absolute unchanging moral rules" (Dewey 1908: 298), he simultaneously argues against the common critique of the casuists, and states that "those who attempt to provide the machinery which render it practically workable deserve praise rather than blame" (Dewey 1908: 298). He repeats this message in *Human Nature and Conduct* (1922), where he describes casuistry as a method that "ought to be lauded for sincerity and helpfulness, not dispraised as it usual is" (Dewey 1922: 240). In this way, Dewey seems to acknowledge the advantages of casuistic method, which he defines as "simply the systematic effort to secure for particular instances of conduct the advantage of general rules which are asserted and believed in" (Dewey 1922: 240). As mentioned by Jonsen and Toulmin, William James equally recognizes the importance of a casuistic method (1988: 282-283).

> "The central core of medicine […] comprises practical procedures designed not to explain health and disease in theory but to treat illnesses and restore health, as a matter of practice. These procedures are the medical profession's collective property: though general in form, they comprise general practical skills (technai, in Aristotle's terms) rather than belonging to theoretical science (episteme). At the other extreme are the skills that are the individual physician's personal property. A doctor's skill in handling his patients' medical problems demands not only knowledge about the general practical techniques of diagnosis and therapy but also specific and particular kinds of clinical understanding. The central question for him is always, "Just what specific condition is affecting this particular patient, and just what should we do about it, *here and now*?" " (Jonsen & Toulmin 1988: 37)

Again, as with Dewey, the specific relationship between the physician's individual skills and experiences on the one hand and procedures and more generalised forms of knowledge on the other is not one where the physician's judgment is subordinated to procedures or scientific knowledge; clinical judgment is not a matter of deduction from generalised knowledge, but it "relies heavily" (Jonsen & Toulmin 1988: 38) on scientific knowledge, which functions as an "intellectual background to his clinical decisions" (1988: 39). Decisions and knowledge are thus not related "by any strictly formal entailments but in more indirect, substantive ways" (1988: 43).

In some instances in the paradigmatic cases, the link between generalised knowledge and the specific case is quite straightforward. In others, however, cases are "less open to theoretical understanding, but they are no less typical elements of clinical practice" (1988: 39). And here, Jonsen and Toulmin argue, judgment is *personal*:

> "The guarantees of medical objectivity do not, in practice, depend only on formal theoretical entailments: the strongest support for agreeing to a clinical diagnosis or a therapeutic proposal comes from substantive medical evidence. There is, of course, a germ of truth in the "personal" view. In a given case, when the doctor accepts a scientific theory or clinical procedure, his decision is not a mere hunch or matter of taste, but typically it does remain a matter of *personal judgment*. What is the subject matter of this judgment? When a doctor reviews a medical history and pattern of symptoms, what exactly does he "perceive"? We can define the object of clinical judgment more clearly if we think of this clinical perception as a kind of pattern recognition." (1988: 40)

This particular relationship between the procedure and the individual physician's personal judgment is strickingly close to Dewey's description of the relationship between propositions and *individual* judgments[20].

What determines both positions is the idea that, although personal or individual, the judgment is not subjective, as in random or 'a mere hunch or matter of taste'; rather, it is personal because every situation and patient is unique.

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[20] The close affinity between the two positions is not, I believe, accidental. Stephen Toulmin, who characterises himself as a pragmatist, describes John Dewey as "a man I immensely admire" (Toulmin 1993: 292). In Toulmin's introduction to Dewey's *The Quest for Certainty* (Toulmin 1984; Dewey 1929), he includes Dewey in a line of practical philosophical positions ranging from Aristotle over Cicero, Aquinas, medieval casuists, Adam Smith, and so on. Dewey's "emphasis on the presence of experiential elements in our methods of argument took one step further the debate about practical reasoning which had been initiated in Aristotle's Topics and developed by rhetoricians of late antiquity and the Renaissance" (Toulmin 1984: x). Toulmin finds Dewey's identification of logic as experiential and knowledge as rooted in action of particular interest, and he stresses that in moving away from viewing objectivity as detached to stressing how we interact with what we study, what we today with a popular phrase call performativity, Dewey is ahead of his time (Toulmin 1984).

To Jonsen and Toulmin, the particular kind of 'pattern recognition' on which clinical experience is based resembles in important ways the casuistic methods, which they have set as their task to rehabilitate. They argue, for instance, that clinical diagnosis is based on a "*taxonomy* of known conditions and the paradigmatic cases that exemplify the various types" (1988: 40). Diagnosis then becomes "a kind of perception and the reasons justifying the diagnosis rests on appeals to analogy" (Jonsen & Toulmin 1988: 40), which in cases of ambiguity means that the physician must choose between diagnoses by deciding how analogous the case is to the different possibilities. Importantly, this method of thinking may in the marginal or ambiguous cases lead to different conclusions between clinicians, who "equally skilled and conscientious may share their information fully and have the best wills in the world" (1988: 40). Again, reaching different diagnoses and treatment proposals does not mean that their judgments are "subjective or uncheckable" (Jonsen & Toulmin 1988: 41). Rather, time will show "the consequences of the rival views […] making it clear just how "objectively" serious the different implications of those judgments really were" (1988: 41). By describing clinical rationality in these terms, Jonsen and Toulmin sum up important characteristics of practical reasoning, where conclusions should be understood as 'rebuttable presumptions'[21] that are open for revision; where evidence is 'substantive' rather than formally entailed; and where the inference from evidence to conclusion is 'thoroughly circumstantial', that is, dependent on time and context (Jonsen & Toulmin 1988:42).

[21] A rebuttable presumption (*praesumptio iuris tantum*) is a term used in law. It can be defined as "a presumption that the law allows to be contradicted by evidence" (Oxford English Dictionary), and, as such, it is a presumption taken as true unless contested or proven otherwise. The term has obvious affinities to pragmatic thought, not least to Dewey's 'warranted assertability' as a preferred term for truth.

Jonsen and Toulmin use the medical example to illustrate how to approach ambiguous cases in ethics. Their main argument is that "if we start by considering similarities and differences between particular *types* of cases on a practical level, we open up an alternative approach to ethical theory that is wholly consistent with our moral practice" (1988: 13). Such an approach is neither a question of blindly following principles, nor is it a simple matter of taste or, put differently, it is not a choice between rules or not rules, but between "*good* casuistry, which applies general rules to particular cases with discernment, and bad casuistry, which does the same thing sloppily" (1988: 16). Importantly, especially for the theme of this dissertation, it also goes for cases of failure or misuse of discretion that what is called for is "not multiplication of further rules the inflexible application of which will only end by creating still more hard cases" (Jonsen & Toulmin 1988: 9). And later:

> "When discretion is abused, the first step is not to eliminate the occasion for exercising discretion and impose rigid rules instead: rather, it is more appropriate to ask how matters might be adjusted, so that discretion can be exercised more equitably and discriminatingly." (1988: 341)

In this way, Jonsen and Toulmin argue for the adjustment of already existing rules and "the exercise of wisdom, discretion, and discernment in enforcing the rules we already have" (1988: 9) as an 'intelligent alternative', in Dewey's words, between throwing away rules and sticking to them stubbornly.

3.4 Medical reasoning as perception: Foucault on clinical experience

In Jonsen and Toulmin's account of medical reasoning, they describe how medical students are shown different cases of illness to learn the specific skill of 'syndrome recognition', whereby one is taught how to 're-identify' a disease or disability based on previous experience. Clinicians are then essentially to "learn what to look for as

indicative of any specific condition and so how to recognize it if it turns up again on a later occasion" (Jonsen & Toulmin 1988: 41). In *The Birth of the Clinic* (1994[1963]), Foucault focuses exactly on this perceptual aspect of medicine and investigates the historical conditions that led medicine to cultivate a particular way of looking: the medical gaze. In what follows, I will shortly turn to this argument to draw out a few significant lines of reasoning that can help build some of the further arguments of this dissertation.

The Birth of the Clinic is an inquiry into modern medicine in France in the late 18th and early 19th century, where the clinic (the teaching hospital) was formed as an institution. Before the French revolution, medical teaching had been highly theoretical, but through a reorganization of the hospital sector and the introduction of the clinic, a practical element was added to the more theoretical teaching at the universities. The background for this reorganization was, among other things, a wish to institutionalise and homogenise the medical field and not least to regulate medical training to avoid quackery. Institutionally, then, the clinic appeared as "the concrete solution to the problem of the training of doctors and the definition of medical competence" (Foucault 1994: 75). And it was this "institutional reorganization of medicine" (1994: 69) that paved the way for clinical medicine and clinical science as we know it today.

Hence, by combining theoretical medical education with the practical training and observation done in the clinic, "the value of medical experience" (Foucault 1994: 77) was reorganized: In targeting the practical experience of the clinician, the medical profession was redefined on criteria "based on the notion of competence, that is, on a set of possibilities that characterized the very person of the doctor:

knowledge, experience, and that 'recognized probity' referred to by Cabanis"[22](1994: 80). As such, the institutional reorganizations of healthcare pushed medical competence, experience, observation, and practical training to the forefront. In this environment, where the patient's bedside became a place to observe and discover clinical facts and, hence, where "the illnesses of some should be transformed into the experiences of others" (Foucault 1994: 84), a particular notion of medical perception and description was born. The institutional reforms paved the way for certain reorganizations in knowledge structures to appear, which made the ideal of the exhaustive and exact description of signs and symptoms in the individual patient the primary task for clinical medicine; it paved the way for the development of "the technical armature of a perception of cases" (1994: 99). In the early days of the clinic, the myth of the medical gaze arose to account for the clinician's ability to perceive the aggregate of signs and symptoms as they presented themselves. In this way, a particular relationship between the visible and expressible, between the gaze and language, was established, and, for the first time, Foucault argues, medical language was able to "say what one sees" (1994: 196). At the heart of this connection, that is, "at the heart of clinical experience" (Foucault 1994: 115), is the ideal of the exhaustive description:

> "It is in this exhaustive and complete passage from the *totality of the visible* to the *over-all structure of the expressible (structure d'ensemble de l'énoncable)* that is fulfilled at last that significative analysis of the perceived that the naïvely geometric architecture of the picture failed to provide. It is description, or, rather, the implicit labour of language in description, that authorizes the transformation of symptom into sign and the passage from patient to disease and from the individual to the conceptual."(1994: 114)

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[22] French philosopher and physician Pierre Jean George Cabanis (1757-1808), author of *Observations sur les hôpitaux* (Paris 1790) and a vital figure in the administration and restructuring of hospitals and clinical teaching in late eighteenth- and early nineteenth-century Paris.

To describe, then, "is to see and to know at the same time, because by saying what one sees, one integrates it spontaneously into knowledge; it is also to learn to see, because it means giving the key of a language that masters the visible" (Foucault 1994: 114). This describing gaze is also that which marks the exclusivity of the medical profession, as it is not for everyone, but only for those who know its language. It is by this particular notion of clinical description as establishing the link between the individual and the conceptual that "[m]edicine made its appearance as a clinical science" (1994: xv). By use of the clinical description, medical reasoning becomes a question of isolating, articulating, and describing individual facts in such a way that a rational and 'scientific' language concerning an individual is made possible. In this way, Foucault establishes, in opposition to most other medical historians, qualitative descriptions rather than statistics and quantification as the essence of medical rationality and as that which makes medical science possible. Although in this way secondary, probabilistic thought was nonetheless an important discovery when it, by the end of the 18th century, was invented as a 'solution' to what Foucault determines as medicine's old theme of uncertainty. Now "medicine discovered that uncertainty may be treated, analytically, as the sum of a certain number of isolatable degrees of certainty that were capable of rigorous calculation" (1994: 97), whereby a significant "*contribution of themes of formalization*" (1994: 105 – original emphasis) was introduced into medicine.

To sum up, when Foucault speaks of the clinic, he refers equally to the concrete appearance of the teaching hospital *and* to a specific method aimed towards the individual case and thorough descriptions of signs and symptoms essentially based on "an attentiveness above all to individuality, particularity, uniqueness, the description of difference" (Osborne 1994: 32). It is this possibility of qualitative descriptions, of organizing a language around an individual and about disease that make clinical experience possible and, as such, Foucault "locates the basis of clinical

originality above all in a new orientation towards language and its objects" (Osborne 1994: 34).

Without necessarily buying into any epistemological or epochalist version of history, Foucault's arguments about clinical experience, description, and perception can be valuable for understanding the contemporary reorganization of healthcare. To Foucault, clinical experience was made possible at a particular point in time in France by the reorganization of hospital structures, and, as such, *The Birth of the Clinic* can be used "to argue that such a form of clinical practice is historically and culturally located" (Armstrong 1997: 44). In this way, medical reasoning as a particular way of creating a link between the individual fact and the conceptual through descriptions of cases is an organizational, institutional, and historical phenomenon, whereby the "conditions of possibility of medical experience in modern times" (Foucault 1994: xix) becomes a context-specific and organizational question. This further entails that medical rationality is explicitly bound to the clinician as an institutional figure, and, as such, "it was no longer the gaze of any observer, but that of a doctor supported and justified by an institution, that of a doctor endowed with the power of decision and intervention" (Foucault 1994: 89). As such, clinical experience is identified as a context-specific concept that is highly dependent on the organizational and institutional structures of the healthcare system.

Of equal interest is Foucault's description of how the medical gaze "was soon to be taken as a simple, unconceptualized confrontation of a gaze and a face, or a glance and a silent body; a sort of contact prior to all discourse, free of the burdens of language" (Foucault 1994: xv). And how what was praised became the clinician's fine aesthetic sensibility and taste, independent of the institutional structures and the language that made clinical experience possible:

> "Thus this sensory knowledge – which nevertheless implies the conjunction of a hospital domain and a pedagogic domain, the definition of a field of probability and a linguistic structure of the real – is reproduced to praise of the immediate sensibility." (Foucault 1994: 121)

In this way, the more technical side to the description is transformed into a purely aesthetic quality; the clinic "is summarized and fulfilled in the prestigious rapidity of an art" (Foucault 1994: 121), and "the technical armature of the medical gaze is transformed into advice about prudence, taste and skill" (1994: 121). This new myth of the gaze as an aesthetic capacity free of language and institutional bounds has dominated medical history and the self-understanding of the medical profession. Without the recognition of medical perception as highly dependent on description, the free gaze was soon taken as an almost metaphysical ability by the medical profession, who determined medicine's relation with disease as "one of instinct and sensibility, rather than of experience" (Foucault 1994: 55). As a result, the organizational, institutional, and intellectual circumstances, which made medical competence, experience, observation, and description possible, was reduced to a certain mythical account of "some strange, sensorial element of 'touch', 'glance', or 'flair' " (1994: xv). In this way, the identification of the "the great myth of the *free gaze*" (Foucault 1994: 51), in which medical experience is entangled, points towards some inherent tensions in the self-understanding of the medical profession.

3.5 The constituents of the clinical situation

Throughout this dissertation, and as reflected in its title, I use the term 'the clinical situation' to determine the reasoning, practising, and organizing that goes into the clinical task of curing the sick. Addressing the question of medical reasoning from the point of view of practical philosophies can be seen as a first step in determining

the constituents of 'the clinical situation', not least, I believe, to reach an understanding of what is profoundly 'clinical' in the clinical situation.

A few words should, however, first be said about my use of the term 'situation'. The notion is inspired by my pragmatic stance, which I will lay out in Chapter 4, and not least by Dewey's use of the concept. A situation is not something we enter into, or something that we can look upon from the outside as objective spectators; we are always participants. To Dewey, any experience that involves interaction – or 'transaction'[23] as he prefers in his later writings – between an organism and its surroundings marks a situation; "a qualitative and qualifying situation is present as the background and the control of *every* experience (Dewey 1938: 70, original emphasis). As such, Dewey speaks of the situation as a way to address internal and external conditions simultaneously, and therefore as a way to overcome any distinction between the individual and the social as distinct entities. Situations are always unique and particular and involve not only language and actions but also the entirety of the socio-material surroundings that are part of the transaction;

> "The pervasively qualitative is not only that which binds all constituents into a whole but it is also unique; it constitutes in each situation an *individual* situation, indivisible and unduplicable. Distinctions and relations are instituted *within* a situation; *they* are recurrent and repeatable in different situations." (Dewey 1938: 68)

To Dewey, situations can be defined after their degree of 'determinacy'. Some situations are determinate, that is, they are unproblematic, smooth, and often based on routines and habits. Other situations are indeterminate, as in, unsettled or

[23] Dewey promotes the concept 'transaction' in his later work as a way to stress the inseparability, reciprocity, and mutual dependency between individual and surroundings, which is not, he argues, implicated by the notion 'interaction', which rather indicates a distinction between separate entities (Dewey & Bentley 1949).

confused. Being confused and in doubt is not only a trait of the human but of the situation itself: "We are doubtful because the situation is inherently doubtful" (Dewey 1938: 109). If we as humans react to this unsettledness and start inquiring into the situation, it is turned into a problematic situation, with the goal of allowing the situation to be, again, turned into a determined situation. This is a process of co-ordination between organism and surroundings, where both are slightly changed due to the inquiry, its results, and the experiences it adds. In this way, thought, inquiry, and reflectivity serve a function in those situations where the continuity of action is at risk, and where it is not clear "what kind of responses the organism shall make" (Dewey 1938: 107). I will come back to the concept of inquiry in the next chapter. It is well known that the Deweyan aspiration to overcome the tendency to separate man from his environment has inspired Science and Technology Studies and especially Actor-Network Theory's claim to the so-called principle of generalised symmetry, which implies that we must not presuppose differences between human and non-human actors (see, for instance, Callon 1986; Latour 1987). It must be noted, however, that by pronouncing humans as socially and materially embedded in their environment, Dewey was not seeking to reorient our focus from human to non-human actors but was thoroughly and primarily interested in human conduct and human inquiry. However, with his ideas of the situation, transaction, and similar concepts, he underscored the importance of not addressing the human in isolation, but rather as a social being embedded in, and somewhat determined by, its surroundings – albeit with unique problem-solving capacities:

> "Man, as Aristotle remarked, is a social animal. This fact introduces him into situations and originates problems and ways of solving them that have no precedent upon the organic biological level. For man is social in another sense than the bee and ant, since his activities are encompassed

> in an environment that is culturally transmitted, so that what man does and how he acts, is determined not by organic structure and physical heredity alone but by the influence of cultural heredity, embedded in traditions, institutions, customs and the purposes and beliefs they both carry and inspire." (Dewey 1938: 43)

Hence, by using the term 'situation', I wish to draw attention to the interconnections and inseparability between the clinician and his surroundings. Moreover, in using situation instead of, for instance, the excessively used notion 'practice', I equally underscore the attention to particular moments of clinical work; the unique and individual situation that is the background of any clinical experience. In discussing critical incidents and medical error, attention to the uniqueness of situations is especially important as a way to remind us of the situated character of such constructs, as well as of medical work and safety in general.

As for what is to be understood as 'clinical' in the notion 'the clinical situation', the above descriptions of medical reasoning have captured some of the most essential traits. First, in these accounts, medical knowledge is understood as fallible, tentative, particular, and as closely connected to the actions of the healthcare professionals, who through perception, description, and, reasoning are 'coming to know'. In close alignment with the presented practical philosophies, Marianne Paget – a sociologist who has written extensively on medical mistakes – stresses the inseparable connection between action and knowledge in medicine:

> "In clinical medicine, knowledge is embedded in a particular activity, the care and treatment of the sick. It is not a form of knowledge but a method of acting and thinking about illness. In use, knowledge takes characteristic shape as acts that are experiments with knowledge – trials, as it were. These trials of knowledge are purposive. They are externalized as events in the world." (Paget 1988: 49)

Paget terms these trials of knowledge 'acting as if' and stresses that they are characterised by the fact that they aim at some effect regarding another human being, for instance, at relieving pain, limiting disability, etc. In a manner notably close to the pragmatists' line of argument, she further describes such medical knowledge trials as follows: "They are not disinterested, for example, in the sense that hypotheses are said to be disinterested. Rather they aim at going beyond understanding and testing propositions: they intend a difference in the world of others" (Paget 1988: 49). Moreover, these trials of knowledge are exactly trials that, no matter how competent, might go wrong. The clinical situation, then, is characterised by a constitutive relationship between the infallible nature of medicine and the actions, responsibilities, and ethos of the healthcare professional. Therefore, it is not by chance that ethics and medicine have traditionally been linked and that is why it becomes constructive, I believe, to address the meaning of the clinical situation by saying a few words about medicine as a moral practice. This is particularly necessary because of the dominant political rationalities of contemporary safety management, where a systemic perspective on error and its blame-free rhetoric threatens to discount the inseparable link between safety and the actions and responsibilities of clinicians.

3.6 Medicine as moral practice

From a Deweyan perspective, and in the broadest sense, medical practice can be determined as a moral practice insofar as any kind of conscious valuation can be defined as a question of ethics. Thereby, Dewey stretches the scope of ethics to include every decision between alternatives:

> "[M]orals has to do with all activity into which alternative possibilities enter. Reflection upon action means uncertainty and consequent need of

> decision as to which course is better. The better is the good; the best is not better than the good but is simply the discovered good. Comparative and superlative degrees are only paths to the positive degree of action. The worse or evil is a rejected good. In deliberation and before choice no evil presents itself as evil. Until it is rejected, it is a competing good. After rejection, it figures not as a lesser good, but as the bad of that situation." (Dewey 1922: 278)

It is, as characteristic of the pragmatic position, the consequences of the act that determine its moral value, and, as such, every act that can be judged to be better or worse for a certain outcome can be said to be moral. As such, the issue of time in any value judgments (such as a diagnosis) is accounted for; what is better and worse is often not decided before the outcome of the decision can be judged and, as such, any judgment must be tested in terms of its success in guiding action. This view on morality, Dewey argues, establishes the possibility that morality potentially covers "one hundred per cent of our acts" (1922: 279), and it "saves us from the mistake which makes morality a separate department of life" (1922: 279). Therefore, morality is an ongoing achievement which entails revising one's judgments and acts based on the consequences of earlier actions: "When we observe that morals is at home wherever considerations of the worse and better are involved, we are committed to noticing that morality is a continuing process not a fixed achievement" (1922: 280). This Deweyan notion on morality entails that morals should be ascribed to actions and conduct rather than to the individual who decides on these actions. It further entails that as conduct is social, so is moral: "Conduct is always shared; this is the difference between it and a physiological process. It is not an ethical "ought" that conduct *should* be social. It *is* social, whether good or bad" (Dewey 1922: 17). However, for the arguments of this dissertation it is interesting to

notice how the insistence on the shared and embedded nature of human conduct does not mean that we are not accountable or responsible for our acts:

> "A human being is held accountable in order that he may learn not theoretically and academically but in such a way as to modify and – to some extent – remake this prior self. The question of whether he might when he acted have acted differently from the way in which he did act is irrelevant. The question is whether he is capable of acting differently *next* time; the practical importance of effecting changes in human character is what makes responsibility important." (Dewey 1932: 304)

In this way, Dewey's version of ethics is quite close to the Aristotelian notion of virtue. Approaching responsibility (or blame) is about learning from our experiences and becoming 'better' people (or clinicians), that is, people with habits built on valuable experiences and people who are good judges of 'relative values' in particular situations:

> "We may say, for short, that a person of sound judgment is one who, in the idiomatic phrase, has "horse sense"; he is a good judge of *relative values*; he can estimate, appraise, evaluate, with tact and discernment." (Dewey 1933: 210)

This notion of ethics is close to the notion of casuistry or case-based reasoning described above. Being a good clinician, then, is a question of being a good casuist, that is, to apply "general rules to particular cases with discernment" (Jonsen & Toulmin 1988: 16), instead of doing it, as Jonsen and Toulmin argue, sloppily.

So from this practical approach to ethics, medicine is a moral practice in the most general form because it involves decisions as to what is better or worse, useful or useless, fit for a particular purpose, and so on; it is moral because when we, for instance, "pronounce the judgment "well" or "ill", we estimate in value terms"

(Dewey 1932: 264). Moreover, in these situations the better clinician is he who is a good judge of relative values in particular instances, and it is he who, when met with problems or uncertainties, is able to use procedures, guidelines, existing practices, and earlier experiences with discernment and discretion. Ethics becomes, then, about fostering those abilities. Jonsen and Toulmin describe medicine as an exemplary case of moral conduct in this way:

> "[W]hen medicine is practiced conscientiously as well as skillfully, it becomes a prototypically *moral* enterprise. A doctor who diagnoses correctly and who prescribes successfully behaves meritoriously, nor merely because his actions are *effective* but equally because, given his relationship to the patient, these kinds of actions are *appropriate*: that is, they fulfill his *duty* as a physician – so much that one might even regard clinical practice as a "special case" of moral conduct generally." (1988: 42)

This quote points to another element of the moral status of medical practice: By defining moral conduct in terms of the 'appropriateness' of actions and in terms of the 'fulfilment' of one's duties, another tradition of moral thinking must be brought forth to account for the particular demands, requirements, and duties that are part of medicine as an instituted office, as well as for the ethical dimensions of occupying a persona who holds such an office[24]. The Weberian concept

[24] Although focus on duties on the one hand and consequences on the other has traditionally belonged to different sides of the classic philosophical dispute about ethics, I believe that the office-based perspective on ethics is, at least most of the way, perfectly commensurable with the Deweyan idea of morality as intrinsically linked with action and conduct. Common for both perspectives, ethics is not about identifying ultimate or *a priori* principles as criteria of valuation. Moreover, focus is shifted from the ideas of moral subjects and questions of moral autonomy to concrete conduct and the circumstances on which this conduct is conditioned. And, in line with the Aristotelian legacy, morals is intrinsically linked with training, practice, experience, and

Lebensordnung, i.e., ethical life-order or office, implies "that people are educated (in the widest sense of that term) to live up to the demands and requirements of their respective offices" (Du Gay 2008: 337). This Weberian notion of office has inspired contemporary conceptions of office-based ethics (Condren 2006; Du Gay 2007, 2008, 2009, 2010b), where the focus is on the ethical attributes of the personae that occupy particular offices. In this interpretation of Weber, based largely on the pioneering work of Wilhelm Hennis (1988), the focus is firstly on Weber's description of the distinctiveness of offices and the differences between them: "Because different patterns of moral quality and skill helped to distinguish one office from another, the ethics of office was not therefore exhausted by any posited global pattern of virtue. Different offices embodied and expressed differing purposes" (Du Gay 2009: 361). Secondly, attention is drawn to people in office who are viewed in terms of their instituted statuses, that is, "as personae – as bundles of instituted rights and duties – and not as integrated selves" (Du Gay 2009: 362).

One way to attend to medicine as an 'office' is by looking to the oath historically taken by physicians as well as nurses when they finish their education and become 'members of the medical profession'. Here, they swear to practise medicine with "conscience and dignity", to consecrate their life "to the service of humanity", to let the health and life of the patient be their "first consideration", and have the "utmost respect for human life". Moreover they swear to confidentiality, the equal treatment of patients, and so on.[25] Swearing an oath signals, if anything, the duties and

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education in acting in a particular manner, with a particular disposition or virtue, appropriate to the demands of the situation or to the office which one holds.

[25] In 1948 the *Declaration of Geneva*, a declaration of physicians' moral and humanitarian responsibilities, was adopted by the General Assembly of the World Medical Association. The declaration is built on the Hippocratic Oath, believed to have been written by Hippocrates or his students in the late 5th century BC. World Medical Association. *Declaration of Geneva*: http://www.wma.net/en/30publications/10policies/g1/index.html (Retrieved 29 June 2013).

obligations inscribed in the medical office, as it were, and the ethical demands set on the clinician as a persona. Viewing medicine from this office-based perspective draws attention to traditional demands and duties of the clinician, but also to limits of operation. Weber himself notes, in his "Science as a Vocation" (1946[1922]), how the medical persona is sometimes challenged by his obligation to do anything possible to maintain life:

> "Consider modern medicine, a practical technology which is highly developed scientifically. The general 'presupposition' of the medical enterprise is stated trivially in the assertion that medical science has the task of maintaining life as such and of diminishing suffering as such to the greatest possible degree. Yet this is problematical. By his means the medical man preserves the life of the mortally ill man, even if the patient implores us to relieve him of life […]. Yet the presuppositions of medicine, and the penal code, prevent the physician from relinquishing his therapeutic efforts. Whether life is worth while living and when – this question is not asked by medicine." (Weber 1946 [1922]: 144)

When viewing medicine in the light of office-based ethics, it becomes possible to ask questions of professional responsibilities, obligations, and duties, as well as questions of misconduct and the failure to live up to obligations. Moreover, the issue of patient safety can, from this perspective, be said to have been a core element of the office of medicine since Hippocrates: Although the axiom 'first, do no harm' (or the Latin *primum non nocere*) is no longer part of the oath, it is a well-known and widely taught principle at medical schools, and especially in emergency medicine, to remind the clinician to always consider the risks of intervention and to weigh these against possible positive outcomes.

To sum up my use of the notion 'the clinical situation': As a 'situation', it is unique, undividable, particular, and marks the embedded and interwoven character of

medical practice, where it is not possible to isolate the clinician's thinking and actions from his surroundings. With the use of 'clinical', I underscore the fallible and situated nature of medical knowledge and the intrinsic relationship between reasoning, describing, acting, and making a difference to another person's life, which points to the necessity of viewing medicine as a moral practice.

4. A Pragmatic Stance: Analytical and Methodological Choices

The specific approach, methodology, and analytical strategy of this dissertation can be described with the common denominator 'a pragmatic stance'; a term inspired by Bas van Fraassen, who, in his *The Empirical Stance* (2002), sets out to formulate a philosophical standpoint built on trends from anti-metaphysical and empiricist philosophical traditions. By attending to empirical inquiry and the researcher's attitude towards empirical investigation and exploration, van Fraassen argues that "a philosophical position can consist in a stance (attitude, commitment, approach)" (2002: 47) rather than a theory, an ideology, a thesis, or a belief. A stance, according to van Fraassen, concerns the "empiricist's attitude towards science rather than his or her beliefs about it" (2002: 47).

By taking a pragmatic stance, I position myself on the side of the American pragmatists on a number of issues, which I lay out in what follows. At the same time, by highlighting that it is the pragmatist's *attitude* or *stance* that inspires me, I

equally maintain that I am not interested in the entirety of pragmatism's thought complex, possible logical or theoretical inconsistencies, discrepancies between the different pragmatists, etc. In sum, I have a – in the everyday meaning of the word – rather pragmatic attitude to pragmatism as a theoretical field. As such, my primary inspiration amounts to a loyalty to the overall features of the following elements of pragmatism, as I lay it out with readings primarily of John Dewey as well as a few texts from William James. These features are first, a general anti-pessimistic attitude towards epistemology and a faith in human inquiry; second, and in close connection, an attention to the methods and rules of situated and problem-based inquiry; and third, an anti-metaphysical and non-dogmatic stance favouring the empirical and situational over the abstracted and principle-based.

My pragmatic stance, then, should be understood as a certain attitude or deportment that allows me to connect not only with pragmatism, but also with other practical philosophies and empirically-based analytical traditions. An example of this use of stance, as well as of the broad reach of the pragmatic attitude, can be found in Paul du Gay and Signe Vikkelsø's forthcoming chapter on organization theory as 'a practical science', where they specify their use of stance as follows:

> "We deploy this received term, 'Classical Organization Theory', in a specific way, to refer to a geographically dispersed, institutionally disconnected, and historically discontinuous 'stance', characterized, inter alia, by a pragmatic call to experience, an antithetical attitude to 'high' or transcendental theorizing, an admiration for scientific forms of enquiry […], a dissatisfaction and devaluation of explanation by postulate, and, not least, a practical focus on organizational effectiveness, for instance, born of a close connection to 'the work itself', or as we shall have cause to term it, 'the situation at hand'."(Du Gay & Vikkelsø, forthcoming: 3)

This attitude is then contrasted with a more metaphysical orientation or attitude, which they, with reference to Ian Hunter (2006), refer to as 'the moment of theory': A metaphysical stance inspired primarily by post-structuralism and committed to more 'processual' views on reality, which is characteristic of much contemporary social scientific research, including organization studies. In this dissertation, I argue that such a metaphysical stance can also be detected in recent social scientific alternatives to contemporary safety management (see Chapter 8) as well as in trends within ethnographic methodology (touched upon later in this chapter). Such attitudes are, just as the pragmatic ones, "unified neither by a common object, nor a single theoretical language, but rather by a particular stance, attitude or intellectual deportment" (Du Gay & Vikkelsø, forthcoming: 9).

It might strike the reader as odd to turn to the pragmatic corpus from the beginning of the last century to support and frame this dissertation's methodological and analytical choices. Some arguments must be put forth in defence of this choice. The commonsensical, precise, and almost anti-intellectual descriptions of scientific reasoning, or simply 'competent reasoning' (Dewey 1938: 535), which, to Dewey, has a similar pattern from natural sciences to social sciences and through to everyday reasoning, have proved useful in my attempt to account for the research process of this dissertation, without indulging in either lofty discussions of the nature of reality or one-sided defences of particular methods or perspectives. Hence, pragmatism is an operational choice. Not only does it allow me to describe what I have actually been doing, that is, the situated and developing character of my empirical and theoretical choices, it also renders it possible to argue for this rather eclectic and underdetermined process as not only permissible but even advisable. As such, the pragmatic corpus supports an understanding of research as an experimental practice: "What scientific inquirers *do* as distinct from what they *say*, is to execute certain operations of experimentation" (Dewey 1938: 498). Importantly,

as I will discuss later in this chapter, to say that research is an experimental practice is not to say that anything goes or that research is free of rules, tools, techniques, skill, or training; rather, it is on the contrary.

When I attend to the pragmatic inquiry, it is not of methodological reasons only. Rules of, and conditions for, inquiry are also to a large extent this dissertation's subject matter. As such, my critique of recent safety management efforts is largely based on the recognition of some of the more common structures and patterns of inquiry identified by the pragmatists; as are the descriptions of medical reasoning laid out in the preceding chapter. Consequently, this dissertation is, on different levels, concerned with structures and patterns of situated and pragmatic reasoning.

Many contemporary writers have been inspired by pragmatism in their methodological positions. When I choose to stay primarily with the original pragmatic texts, it is because few, I believe, argue as convincingly and thoroughly as the pragmatists themselves, and most prominently perhaps John Dewey in his *Logic: The Theory of Inquiry* (1938). Additionally, much neo-pragmatic literature (most prominently perhaps Richard Rorty (1931-2007)) and pragmatic-inspired literature (for instance within STS and Actor-Network Theory perspectives) are highly influenced by post-structuralism or 'the linguistic turn', often to such a degree that it clashes, I believe, with the perspective of the pragmatists, who held that "[d]iscourse that is not controlled by reference to a situation is not discourse, but a meaningless jumble" (Dewey 1938: 68).

4.1 The will to believe truth

This is not the place for a long discussion on epistemology. It does seem appropriate, however, to say a few words about the general attitude to knowledge of the present dissertation; not only for approaching the status of this project's

knowledge claims, but equally because the project, to a large extent, concerns the status of knowledge claims in medicine as well as the epistemological claims of safety management, which seeks to reconfigure clinical knowledge and ways of reasoning in important ways. Moreover, a few remarks about the epistemological consequences of the project's pragmatic stance will indicate where the presented perspective differs from many of the common post-structuralist, relativist, and epistemologically pessimistic analytical positions that abound today.

Van Fraassen's description of "the distinctive approach to knowledge of the pragmatists" (Van Fraassen 2002: 83) can serve as an introduction to this discussion. On the one hand, one finds objectifying epistemologies, van Fraassen argues, which involve "a factual descriptive theory of cognition" (Van Fraassen 2002: 77). Such a description can include both "a scientific theory, belonging to cognitive science" and "metaphysical theory about the grasping of essences or the like" (Van Fraassen 2002: 78). Opposed to this, van Fraassen highlights a 'voluntarist epistemology', which "reject[s] the "theory format" " (Van Fraassen 2002: 77), and of which the American pragmatists, according to van Fraassen, are the most prominent advocates. In this understanding of epistemology, successful epistemic pursuits cannot be decided by theory, but depends on empirical facts, and hence, what is to be defined as 'successful' in the specific situation. As a result, focus is turned to the pursuit's aims: "Only if we can answer what we are after in this enterprise can we begin to determine how much of it hinges on our doing something well or badly and how much on contingent fortune" (Van Fraassen 2002: 82-83). Moreover, the epistemological voluntarist is driven by a faith in the abilities of human inquiry, without believing in absolute truths. In William James' lecture with the instructive title "The Will to Believe", he summarizes his position as an empiricist as follows:

> "I live, to be sure, by the practical faith that we must go on experiencing and thinking over our experience, for only thus can our opinions grow more true; but to hold any one of them - I absolutely do not care which - as if it never could be reinterpretable or corrigible, I believe to be a tremendously mistaken attitude." (James 1896: 8)

Today, the insistence on the fallibility of knowledge and the willingness to revise one's views are hardly radical claims, although this attitude might well be claimed more than actually practised. What, however, is worth highlighting, is James' 'practical faith' in inquiry as a means to get closer to truth, the idea that although "as empiricists we give up the doctrine of objective certitude, we do not thereby give up the quest or hope of truth itself" (James 1896: 9). The faith that our opinions will eventually grow more 'true' if we turn to experience and thinking, that we "gain an ever better position towards it by systematically continuing to roll up experiences and think" (James 1896: 9) is a (Darwinian inspired) optimism, which can be found across the pragmatic corpus. It marks a specific *stance* towards epistemology. In van Fraassen's optic, this is what is to be understood as the 'voluntary' in the pragmatist epistemology; it consists in a wish or a will to believe in truth[26]. The positive

[26] The 'voluntarist' attitude to truth is not characteristic to all pragmatists, and in particular Charles Sanders Pierce (1839-1914) and George Herbert Mead (1863-1931) seem to posit a more 'realist' attitude to truth and knowledge than the attitudes of Dewey and James. For my purposes, I mainly draw on James' and Dewey's somewhat more instrumental epistemological stance; however, I do not agree with the radical relativist account of these thinkers, which are sometimes assumed because of their reception in, for instance, Richard Rorty's neo-pragmatic and linguistic philosophy (Rorty 1979; 1982). In view of such readings, Dewey's and James' epistemological positions has by Ian Hacking been summarized as follows: "There is not only no external truth, but there are no external or even evolving canons of rationality" (Hacking 1983: 63). Hacking further argues that Dewey "should have turned the minds of philosophers to experimental science, but instead his new followers praise talk" (Hacking 1983: 63). I do not believe that Hacking's reading does justice to Dewey, who spent much, perhaps even most, of his time praising scientific and experimental inquiry and can therefore hardly be blamed for his post-structuralist follower's deeds. As for the question of 'canons of rationality', this must be a question of definition; with the commitment to rules of, and conditions for, inquiry and the trust

attitude towards knowledge and science that characterises pragmatism, as well as van Fraassen's empirical stance, is not so much directed at the content of science, however, but more towards sciences "as practice, as search, as rational form of inquiry par excellence" (Van Fraassen 2002: 63). As a consequence of this strong trust in scientific method and inquiry as a way to increase human good, the pragmatists were deeply engaged in methodology.

Choosing, in line with the pragmatic corpus, to be an epistemological optimist has a number of consequences for the present study. Primarily, it has consequences in relation to the project's normative ambitions. Faith in the abilities of human inquiry instils, at the same time, an obligation to conduct effective inquiries into relevant problems with the hope that such inquiries can cast new light on important problems and thereby put us in a better position to understand, act, and possibly make a practical difference in relation to the particular problematic under scrutiny. It might even be argued that it is the duty of the researcher to conduct appropriate and relevant inquiries into important problems.

As such, the 'voluntary' epistemological position should also be understood as an alternative to any radical constructivist position, in which the purpose of research is the deconstruction of facts. A tendency that Bruno Latour, to give an example, describes as a problem for large parts of science studies in a self-critical text on the threats of displaying the social construction of scientific facts with the primary goal of 'subtracting reality' (Latour 2004: 232) from these facts. With reference to William James' 'stubbornly realist attitude' (Latour 2004: 231), and in line with a pragmatic attitude, Latour instils in this text the need to redefine science studies as a

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in human abilities to solve empirically-based problems lies also a strong faith in the results and effects of such reasoning.

quest "not to get away from facts but closer to them, not fighting empiricism but, on the contrary, renewing empiricism." (Latour 2004: 231; for significant discussions on the dangers of radical constructivism see Hacking, 1999; Zammito 2004).

4.2 Knowledge, action, and performativity

A most important feature of the pragmatic view on epistemology needs mentioning; namely, the close connection it instils between thinking and acting. However, pragmatism's focus on the usefulness of thinking in guiding action is probably, apart from being its most well known, also its most misunderstood proposition. Approaching the empirical from a pragmatic stance is not to say that anything goes, that one can act without following rules of conduct, or, as the most common misinterpretation, that truth can be reduced to usefulness. As early as 1884, Mead describes the common misinterpretation of pragmatism to be:

> "[T]hat the individual only thinks in order that he may continue an interrupted action, that the criterion of the correctness of his thinking is found in his ability to carry on, and that the significant goal of his thinking or research is found not in the ordered presentation of the subject matter of his research but in the uses to which it may be put." (Mead 1938[1884]: 97)

Similarly, in one of his several discussions with Bertrand Russell (1872-1970), Dewey confronts the critique of pragmatism that "the only essential result of successful inquiry is successful action" (Dewey 1941: 181). Dewey states that his "whole theory is determined by the attempt to state what conditions and operations of inquiry warrant a "believing," or justify its assertion as true", and further that propositions "are means of attaining a warranted believing, their worth as means

being determined by their pertinency and efficacy in "satisfying" conditions that are rigorously set by the problem they are employed to resolve" (Dewey 1941: 181). This is a significant clarification because it essentially states that it is not the effects of the conclusions of the inquiry that are determining the success (or truth) of the inquiry, but rather the ability or effectiveness of the inquiry to settle the problem it is employed to resolve. As such, pragmatism is essentially about method, that is, about illuminating the conditions of inquiry, which warrant or justify a 'believing' as true. Propositions (or rather working hypotheses, theories, etc.) are to be understood as tools or means, whose 'success' is measured by their ability to solve the problem of the inquiry. As such, Dewey is deeply and predominantly engaged in developing "a theory of the pattern of inquiry" (1938: 534) as an alternative to, for instance, traditional formal logic.

When acting and thinking are then understood as intimately connected in pragmatism, it is not, then, because we only think in order to act, or because truth is only what we deem useful. It is rather because thinking is a kind of action and as such inquiring is not a passive observational exercise instigated to reach some kind of detached objectivity. Rather, inquiry is an activity by which we engage with the subject under scrutiny. In this way, Dewey foreshadows recent debates on performativity (e.g., MacKenzie et al. 2007) by holding the view that inquiry has 'formative' consequences insofar that "new formal properties accrue to subject-matter in virtue of its subjection to certain types of operation" (Dewey 1938: 101). With reference to the practice of law, he describes how "formal conceptions arise out of ordinary transactions; they are not imposed upon them from on high or from any external and *a priori* source. But when they are formed, they are also formative; they regulate the proper conduct of the activities out of which they develop" (Dewey 1938: 102). And it is in this 'formative' way that thinking/concepts become

operational; "they formulate and define *ways* of operation on the part of those engaged in the transactions" (1938: 102)[27].

4.3 The patterns of competent inquiry

When Dewey speaks of inquiry as a productive way of reasoning, it applies, as described, to everyday practical affairs, to specific fields such as law and medicine, and to scientific work; "[I]nquiry, in spite of the diverse subjects to which it applies, and the consequent diversity of its special techniques has a common structure or pattern" (1938: 101). Dewey's definition of inquiry, which he often repeats in slightly different forms, is the following:

> "Inquiry is the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole." (Dewey 1938: 104)

According to Dewey, it all starts with a 'precognitive' (1938: 3) experience of an indeterminate, that is, an 'uncertain, unsettled, disturbed' (1938: 105), situation. In Dewey's major work on inquiry, *Logic: The Theory of Inquiry* (1938), one section is devoted especially to social inquiry, where it is stated that the problems of social inquiry must "grow out of actual social tensions, needs, 'troubles' " (1938: 499) and

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[27] It can be argued that contemporary uses of performativity, particular in its post-structuralist version represented in, for instance, Judith Butler's feminist theory, are quite far from the rather practical and commonsensical Deweyan approach to the concept. This suggestion is in line with Paul du Gay's argument that recent approaches to performativity seek to establish it as a transcendental truth claim, rather than a useful way to engage with certain empirical phenomena: "It seems to me that 'performativity' remains a potentially useful analytical tool for thinking about empirical matters (in an empirical manner), including practical politics, but no more than that. The attempt to make it register some 'higher' philosophical truths is likely only to result in an analytic and empirical 'busted flush' " (Du Gay 2010a: 178).

that "genuine problems are set only by actual social situations which are themselves conflicting and confused"(1938: 498). This actual, unsettled, empirical situation is somehow 'felt' by the inquirer: "[T]he situation as a qualitative whole is sensed or felt" (1938: 68). And as such, it is a pre-discursive experience, a feeling of tensions and unsettledness, which is the precondition of thought.

The next and central step of the inquiry then is the "institution of a problem" (Dewey 1938: 107); that is, to define the situation as problematic, as a situation that requires inquiry and, as such, "the indeterminate situation becomes problematic in the very process of being subjected to inquiry" (1938: 107). This process requires us to "constitute the terms of the problem" (1938: 4), i.e., to determine what the situation is made of, or, in Dewey's words, to search out the "*constituents* of a given situation" (1938: 108).

Following these methodological suggestions, the problem of the situation is, on the one hand, what the inquiry is about, that is, it is the inquiry's subject-matter. On the other hand, the problem is equally that which brings the inquiry forward; it is the organizing device of the inquiry, so to speak:

> "Without a problem, there is blind groping in the dark. The way in which the problem is conceived decides what specific suggestions are entertained and which are dismissed; what data are selected and which rejected; it is the criterion for relevancy and irrelevancy of hypotheses and conceptual structures." (Dewey 1938: 108)

The goal of the exercise of determining the constituents of the problem at hand are to identify "the conditions that must be reckoned with or taken account of in any relevant solution that is proposed" (1938: 4). The 'solution' is the *judgment* that transforms the undetermined situation into a determined situation. Although 'to determine' is described as "to order and organize, to relate in definite fashion"

(Dewey 1938: 221), judgment is never definite, as in universal or everlasting. Rather, it is always spatial-temporal, that is, situated in time and space, and it is always, as described in the preceding chapter, 'individual' (as in particular), as it concerns specific situations. Judgments have probability not certainty, and hence, "the actions that are performed in consequence of accepting them are not logically *ex post facto* […]. They are operations that provide additional evidence, which confirms, weakens, or in some way modifies, the provisionally accepted appraisal" (Dewey 1938: 226). This links, again, with the previous descriptions of medical reasoning, where every medical judgment, such as a diagnosis, is a way to settle a situation temporarily in order to act, whereby new evidence will be provided to either support or weaken the previous judgment. Such judgement can cover quite a wide range of things in Dewey's writings, depending on the nature of the inquiry. In the case of the social problem, for instance, Dewey argues that a solution/judgment could be a "plan and policy for existential resolution of the conflicting social situation" (1938: 499)[28], although in other cases the solution is understood less as a plan and more as those insights that enlighten the problem under investigation.

4.4 This dissertation as an inquiry

It is, I suggest, possible to read Dewey's accounts of pragmatic method equally as a portrayal of actual practical reasoning, that is, as a description of how we as humans

[28] The idea that practical thinking and inquiries are to 'solve' an actual practical problem has been dominant in practical thinking since Aristotle. A conventional version of this argument can be found in Jonson and Toulmin's *The Abuse of Casuistry* (1988), where they differentiate theoretical and practical arguments. Where theoretical arguments are chains of proof, practical arguments are defined in line with the pragmatic approach as "methods for solving problems" (1988: 34), a practical argument is "a network of considerations, presented so as to *resolve* a practical quandary" (1988: 34).

solve practical problems, and as a more normative attempt to sketch the contours of good, effective, and competent inquiry. In this way, it might be argued that Dewey is trying to direct our attention towards the nature of practical reasoning and the rules of inquiry with – in line with his performative understanding of knowledge – the goal of improving our abilities and competences to make such inquiries. When I choose to draw on pragmatic method in this dissertation, it is for both descriptive and more normative reasons. On the one hand, pragmatic method is useful in describing and reflecting on what I have actually done and how I have done it; it has served to describe, in retrospect, some of my methodological choices – also those taken early in the process when I had still not turned to Dewey and the pragmatist corpus. On the other hand, pragmatist methodology has served as inspiration and as an important analytical tool in guiding the content, methodology, research process, and structure of this dissertation. In this rather entangled way, the pragmatic stance has equally inspired, formed, *and* confirmed my attitude to, and choice of, methods, theories, empirical data, etc. When framing this project as a pragmatic inquiry, this reciprocity must be kept in mind.

Before discussing in more detail choices of methods, theories, and data in scientific inquires in general, and in this inquiry in particular, it should be indicated how this dissertation can be quite explicitly defined as an inquiry in Dewey's terms. As I have described in previous chapters, my inquiry into the problem of patient safety has, from the beginning, been driven by a certain feeling of doubt, ambiguity and, unsettledness as to the patient safety programme, although I could not, from the outset, clearly argue for these experiences. Although my mother's case, as described in the preface, has somewhat intensified this experiential feeling, it was triggered much earlier in my initial encounter with the patient safety advocates. As such, the project is empirically based and motivated, or in a Deweyan way, it springs from an unsettled empirical situation; namely, a situation concerning unsettled tensions

between the requirements of the patient safety programme and the modes of conduct it seeks to influence. In further outlining this project as an inquiry, the introductory part of this thesis (Part I) can be understood as laying the ground for transforming this unsettled situation into a problematic one. That is, to subject it to inquiry by beginning to decipher the conditions and elements of the problem by considering what constitutes the tensed or unsettled situation. In the four analytical chapters (Part II), different aspects of this unsettledness and tension are investigated, and, in the concluding part (Part III), some sort of resolution as to what is problematic in the situation is reached and alternatives are pointed to with the potential ability to enlighten, settle, or dissolve the tensions that disturb the present situation.

4.5 Choice of theories

From a pragmatic stance, inquiry is always empirically motivated by a problematic situation and from this perspective any theory's task is, just as it is any method's task, to help enlighten, settle, or solve this situation. In this way, theory becomes secondary insofar as it is only relevant in relation to an empirical experience:

> "An ounce of experience is better than a ton of theory simply because it is only in experience that any theory has vital and verifiable significance. An experience, a very humble experience, is capable of generating and carrying any amount of theory (or intellectual content), but a theory apart from an experience cannot be definitely grasped even as theory. It tends to become a more verbal formula, a set of catchwords used to render thinking, or genuine theorizing, unnecessary and impossible. Because of our education we use words, thinking they are ideas, to dispose of questions, the disposal being in reality simply such an obscuring of

> perception as prevents us from seeing any longer the difficulty." (Dewey 1916: 144)

This quote of continuing relevance is a critique of the irrelevant use of theoretical abstractions without connection to practice. Furthermore, it is a critique of the tendency within education and research to repeat the words of theory, to use them as catch phrases, to such an extent that they become meaningless and stop us from asking important and difficult questions about our empirical experiences. As described in the previous chapter on medical reasoning, theories, propositions, procedures, etc., are not interesting in themselves, and it is irrelevant to ask about *their* truth-value. From a problem-oriented and situational approach to research in particular and reasoning in general, only the theory's adequacy and efficiency in enlightening problems are of significance:

> "I would say that upon my view "propositions are not that about which we are inquiring," and that as far as we do find it necessary or advisable to inquire about them (as is almost bound to happen in the course of an inquiry), it is not their truth and falsity about which we inquire, but the relevancy and efficacy of their subject-matter with respect to the problem in hand." (Dewey 1941: 176)

As such, any proposition, working hypothesis, theory, or argument should be judged by its ability to deliver effective, relevant, or interesting solutions to the problems posed by the empirical material. It is therefore not, from a pragmatic stance, meaningful to cling to any one theoretical position or research paradigm, and this goes for pragmatism as a theoretical position as well.

Hence, in taking a pragmatic stance, this dissertation refers, employs, discusses, and challenges a medley of different propositions, some originating from the pragmatic corpus, some from other practical philosophies, medical sociology, Science and

Technology Studies, organization theory, learning theory, governmentality studies, and so on. Of these theories, some have functioned as ideas or propositions to enlighten my pragmatic stance. Here, it has, as a general rule, been the structure and relevance of arguments rather than the research traditions from which they spring that has determined the arguments' usability. Other studies are employed, not as much as theories or propositions, but rather as empirical sources, or as facts of the case, quite in the same way as when approaching data from my fieldwork. Using sources in this way is the natural consequence of following the technical as well as the discursive elements of the safety programme; its assumptions and its encounters with the clinical situation. In this way, the situation under inquiry has led me to different sorts of 'empirical' sources, of which some are of historical kind, some are of an analytical kind, and some are of a more classic empirical kind. All of these sources are then analysed from a pragmatic stance, that is, with regard to their practical effects.

4.6 Choice of methodological techniques

Dewey, who is well known for fighting dualisms of all kinds, begins his paper on "The Nature of Method" (1916) by dissolving the commonly ascribed dualism between subject matter and method with the claim that "the notion of any such split is radically false" (1916: 165). In this way, he argues against "any theory which postulates forms apart from matter" (1938: 374). With this, Dewey punctures the idea that one can speak of method "with no knowledge of the subjects to which the methods are to be applied" (1916: 165). The idea that method is "never something outside of the material" (Dewey 1916: 165) means that one always has to start from the specificities of the particular problem, and, as such, methods can never "be reduced to a cut and dried routine, to following mechanically prescribed steps"(1916: 169). Rather, Dewey states, method requires "flexibility and initiative in

dealing with problems" (1916: 170). It is important to note, however, that Dewey is not therefore denying the importance of building on one's own and others' experience, and he stresses how "a well-trained mind is one that has a maximum of resources behind it, so to speak, and that is accustomed to go over past experiences to see what they yield" (1916: 157), and how any student or researcher must "supplement the narrowness of his immediately personal experiences by utilizing the experiences of others" (1916: 157). What Dewey is opposing then is not skill, experience, or the use of specific methodological techniques or tools, but rather the predetermination of specific methodologies or tools as 'the proper ways', independent of the particular research objective. In his discussion on the characteristic of social inquiry, he criticizes, for instance, "the assumption that social inquiry is scientific if proper techniques of observation and record (preferably statistical) are employed" (1938: 498). Borrowing such techniques from natural sciences fails to recognize, Dewey argues, the "conditions which in physical science give the techniques of observing and measuring their standing and force" (1938: 498). This important clarification of Dewey's view on scientific reasoning (or any other kind of 'competent' reasoning) as entailing, on the one hand, creativity and flexibility and, on the other, skill, experience, and context-specific techniques, is crucial for the dominant structure of the argument in this dissertation.

In Howard Becker's popular description of particular techniques of social inquiry, he shares Dewey's attitude towards the relationship between creativity and tools. In *Tricks of the Trade* (Becker 1998), he suggests how we as social scientists do not have to invent everything anew but can lean on a number of techniques or so-called tricks based on other researchers' experiences in our own research. These are tricks that can somehow initiate thought, turn things around, stir new ideas, etc. As such, Becker argues that tricks suggest ways "to see things differently, in order to create new problems for research" (1998: 7). In this way, tricks are not the easy way out;

rather, they "suggest ways of interfering with the comfortable thought routines academic life promotes and supports by making them the "right" way to do things" (1998: 6-7). This means that using tricks might be hard work, as it is indeed "more work than if you did things in a routine way that didn't make you think at all" (Becker 1998: 7). Hence, Becker positions himself in line with Dewey in promoting a particular kind of problem-based research where methodology is, on the one hand, experimental and flexible, and on the other, based on skill, experiences, and techniques, but neither predetermined nor routinized. In this way, Becker understands theories and methodologies as essentially serving the same purpose, and he defines theory as "a collection of tricks, ways of thinking that help researchers faced with concrete research problems make some progress" (Becker 1998: 4).

4.7 Methodological tools of this inquiry

In gathering empirical material for this dissertation, I found inspiration in a number of already established methodological tools that are mostly provided by ethnography. As this was my first experience with doing observational studies, I was in need of some guidance: How to design my fieldwork, who to follow, when to take notes, what to write down, how many questions to ask during observations, how to structure the follow-up interviews, and so on and so forth. But through training, some instructive reading (e.g., Agar 2006; Becker et al. 1961; Berg 1997; Strauss et al. 1985; Svenningsen 2003; Van Maanen 1988, 1991, 2006; Vikkelsø 2005), and supervision from more experienced fieldworkers (on various things including, for instance, advice on the type of notebook to use), I managed to get a good deal of interesting material gathered, which has formed some of the empirical basis of this dissertation.

This has, however, not made me an ethnographer and this dissertation is not an ethnographic study; and this is not just because I did not spend enough time in the field, or gathered enough detailed material. As Michael Agar holds, ethnography is not necessarily about time:

> "[I]f you pay attention, read and talk to people before and after a brief visit, and are above average at picking up on new patterns – two weeks is not nothing. Actually, an old man on a Spanish island once told me about his town, "It's better to stay two weeks or two years," he said. "Anything in between is confusing"." (Agar 2006: 36)

Therefore, it is rather the status of my field studies in the argument of this dissertation that distinguishes it from being an ethnographic study. The excellent ethnography requires, with van Maanen's words, "an almost obsessive focus on the 'empirical' " (Van Maanen 2006: 13), and, in traditional ethnography, the 'empirical' is primarily understood as the facts gathered through ethnographic tools, that is, through fieldwork. Although this dissertation is empirically motivated, and although its focus and interest is thoroughly empirical, its material amounts to somewhat more than the fieldwork I conducted, as it also includes previous studies of medical work, policy reports, safety literature, alternative strands to present safety management, learning theories, practical philosophies, and so forth. In my understanding of the situation under scrutiny, these elements are just as important as the fieldwork. Moreover, the purpose of this dissertation is not only to address 'the practices of patient safety', of which a typical ethnography would be likely to attend, but also, and perhaps even primarily, to address the assumptions on which the patient safety programme is established, with the ambition of inquiring into the effects and consequences of these particular assumptions on the clinical situation. It is then, equally, facts and ideas which are the focus of this dissertation and which bring the analysis forward; or as Dewey states: "both observed facts and entertained

ideas are operational" (Dewey 1938: 112). And rather than a clear inductive strategy in the use and presentation of the material, it is clearly selected with regard to its possibilities of enlightening these particular tensions of the situation under investigation.

While I find it useful to spend a few lines addressing what this dissertation is *not*, it is also to make a comment about a particular version of ethnography that is no longer an "empirical obsessed" method "relatively free from technical jargon and high-wire abstraction" (Van Maanen 2006: 13), but rather a genre, a language, a community, and, to some extent, a specific worldview where postmodernist or post-structuralist jargon is the norm. It is, in sum, a particular 'metaphysical' stance on ethnography. This especially goes for some of the so-called 'new ethnographies' (Lather 2007), of which parts of science studies and feminist theory are particular keen advocates. Rather than being free from high-wire abstractions and obsessed with the empirical, 'new ethnographies' often involve a particular (and at times metaphysical) attention to notions such as complexity, messiness, fluidity, multiplicity, performativity, non-representationalism, post-humanism, etc.; a strong focus on the position of the researcher; and an endorsement of " "the messiness" of fieldwork as a social science method" (Marcus 1998: 182). This has led to calls for "messy texts" and "experimental ethnography" (Marcus 1998), where postmodernism is understood as "a bricoleur's art" (Marcus 1998: 185), which renders anything possible (methodologically at least), and where new methods and styles of writing have to be tried out. In such studies, it is often suggested that it should be the purpose of ethnographies to expose how "a complex cultural phenomenon" is given "an initial, baseline conceptual identity that turns out to be contingent and malleable as one traces it" (Marcus 1995: 106). The stance of the new ethnographies has slowly made its way into organization theory as well. As such, it resonates with organizational

theorist Barbara Czarniawska's description of the "triumphal entry of anthropology into organization studies" (Czarniawska 2008: 2) of which she argues that:

> "[M]odern management occurs in a net of fragmented, multiple contexts, through multitudes of kaleidoscopic movements. Organizing happens in many places at once, and organizers move around quickly and frequently." (Czarniawska 2008: 3)

Applying, rather reductively I admit, the same yardstick to these 'new ethnographies', it can be argued that not only are analyses which reach the conclusion that the object in question is contingent and fluid not always that interesting, but, moreover, by deploying the stance of 'new ethnographies' in the study of empirical situations, there is a risk that any type of stability, rule, habit, routine, etc., is rendered unimportant and even worse, that messiness, fluidity and complexity becomes *a priori* normative goods.

In making ethnographically inspired fieldwork, I have first of all borrowed a method or a way into my empirical field; I have not adopted a language, a genre, a worldview, or a metaphysical stance. From my pragmatic stance, it follows that I do not believe, for instance, in the advice to "stick stubbornly to a consistent position and avoid pragmatic amalgams of methodological stances" or even less in proposing "an alternative strategy that embraces the linguistic turn and does not strive for compromises, but on the contrary seeks to radicalise the linguistically turned posture in management and organization studies" (Svensson 2009: 171). Compromises and amalgams of methodological stances might indeed be the best option to create an interesting, useful, and enlightening inquiry into the empirical situation in question, which is unfortunately not always the case when methodologies and theories are radicalized and stubbornly stuck to.

4.8 And this is what I did: The empirical study

Allow me now to turn from the more broad discussions on methods and inquiry to the practical question of this project's research process, which should be seen in light of these more general discussions. As described in the preceding chapter, I started out my PhD in 2009 by conducting a project about adverse events in primary care (Lundsby & Pedersen 2010). The report was based on a pilot study conducted in 2009 in a middle-size Danish municipality, which had, on a trial basis, been reporting adverse events since 2007. It consisted of observational studies (five days of shadowing care workers in nursing homes and in homecare services), three focus-group interviews with groups of care personnel in both nursing homes and homecare services, as well as individual interviews with the managers of the institutions under study[29]. The report concluded that the concept of 'adverse events' was quite foreign to the care personal; they were unsure about its meaning and found it hard to determine and delimitate what was adverse and what was not[30]. As a result, they had difficulties transforming their everyday work practices into readily reportable incidents. Evidently, the 'solution' to these issues quickly became a question of defining adverse events as 'measurable' and pre-described incidents (especially medication incidents), whereby certain types of attention and work were reorganized to favour the more formalised parts of healthcare. One more finding should be highlighted: The political decision to expand the Danish Act of Patient Safety of 2004 to include the primary sector by 2010 did not come with a discussion

[29] Quotes from the fieldwork are translated from Danish.

[30] The Danish translation of adverse event is 'utilsigtet hændelse', where 'utilsigtet' means unintended or without aim, which is slightly different from adverse, as 'utilsigtet' indicates an involvement of someone acting without an aim. This added to the confusion amongst healthcare workers, because, as one nurse suggested, "80 per cent of nursing is unintended. You arrive with a purpose, but then the situation evolves and you find a way to tackle it" (Jensen & Pedersen 2010: 30).

of the differences between secondary and primary care sectors, or how such differences should be reflected in the design of the safety technologies. However, our study suggested that there were important difficulties in assuming that the hospitals' incident reporting system could be readily imported into, for instance, elderly care units. To illustrate: One problem concerned issues of defining the limits of treatment when working in citizens' homes; are homecare workers, for instance, responsible for the elderlies' safety all the time or only when they are present? Other issues concerned more fundamental questions about the relation between the citizens' autonomy and safety issues; what should be done, for example, when the slightly demented refused to get their medication administered, with possible medication failures as a result?

Although the primary care study hardly figures in the remains of this dissertation by direct reference, it has served different purposes in relation to its formation. As such, it has served as an introduction to the field; as an initial indication of the main propositions of the programme and its technologies; as a provider of important experiences of the particularities of different kinds of care work; and as a reminder of the situatedness of the safety issues inherent to this work. In this way, the study pointed to important tensions, or unsettled empirical situations as it were, which gave rise to a growing curiosity on my part. Most importantly, it pointed to how the reorganization of work and attention are likely to follow the introduction of safety technologies, and it drew attention to some of the situated concerns that are not easily combinable with the standardized safety tools. In important ways, it was these initial experiences that showed the way forward.

Late in 2009, I was to begin my fieldwork at the medical centre at a Danish university hospital, where I had an oral agreement to conduct the main study for this dissertation; however, the first difficulty that confronted me was to get the

cooperation and confidentiality agreement in place. The sensitivity of the particular area of medical work I was interested in resulted in a long process of negotiation with the hospital's juridical department about the precise formulations of the agreement. As such, it became very obvious that when it comes to patient safety, or with the Danish popular press' preferred word 'lægefejl' ('doctor errors'), much is at stake: reputation, careers, finances, i.e. all those issues that have been determined by Michael Power and colleagues as 'reputational risk' (Power et al. 2009). The contrast between the rhetoric of learning, openness, and 'non-blame', and the obvious anxiety about possible consequences of my study became telling for the unlikelihood that a doctor – in the eyes of the press and the public at least – would be perceived as the second victim of an adverse event, but rather as guilty of negligence. This interesting ambiguity would later show itself in what, from the outside, would look like paradoxical situations, such as the celebration of the clinics that had the most reported incidents. Within the programme, a large number of reports are to be taken as a sign of a thriving reporting culture rather than a lack of safety; however, a rise in reported incidents are not likely to be interpreted in this way by either press or public. These types of tensions in the programme struck me and instilled a wish to understand the rationalities of the programme and the mechanisms that made such situations durable.

I conducted the empirical study in the Danish university hospital over a period of six months in the first half of 2010, where I pursued a twofold strategy of, on the one hand, following the trail of safety policy and technology at work, and, on the other, following regular medical work practices. For more than two months, at the beginning and end of the period, I followed the centre's quality coordinator (a nurse employed full-time to handle quality and patient safety-related work) to her patient safety-related work tasks and meetings; including root cause analyses; patient safety audits; meetings in the hospital's cross-departmental quality network; task force

group meetings concerning the implementation of new medication guidelines; meetings with the clinics on local projects, such as the design of new identification wristbands; a course in the statistical handling of incident reports to name some. I thereby obtained an insight into what counted as safety work as well as an insight into the workings of the management technologies. It further gave me an opportunity to follow in more depth what I found to be of special interest; namely, the root cause analysis process, where particularly grave incidents are worked over by a group of implicated health personnel and management. I subsequently followed four such processes. These 'patient safety specific' observational studies have been supplemented by interviews with the quality coordinator and the hospital's risk manager. During this process, I additionally collected a large number of documents and written materials, such as brochures, protocols, meeting agendas, action plans, etc.[31]

In the same period, I followed everyday clinical work and patient safety work at a paediatric clinic in the centre. This particular clinic had no less than three patient safety coordinators, who met one day a month to handle reported clinical incidents; organize the implementation of new guidelines; select cases to be taken up with the rest of the clinic; new focus area; etc. Apart from participating in these sessions, I followed two nurses and two paediatricians on regular day- and nightshifts. These clinical-level observations had a number of purposes. Firstly, they functioned as important practical research experience by introducing me to particular features of clinical work, medical reasoning, and situated safety issues. Secondly, the observations gave me an impression of the patient safety programme's effects on every day practice in the clinic in terms of, for instance, time and energy spent on

[31] Parts of the material, primarily patient records, were of such a confidential nature that I only gained access to it whilst on hospital premises.

following safety protocols, on reporting and handling critical incidents, and so on. At the clinical level, I interviewed the medical director of the clinic and the clinics' patient safety coordinators. Moreover, each observation of the regular shifts was followed up by an interview shortly after.

The research process of this dissertation has not been divided into separable stages of data collection, analysis, writing, etc. Following Dewey, it has not consisted in "furnishing crude masses of raw material, to which later on, reflective processes may be applied" (Dewey 1910: 189). Rather, it has been a research process in which each step has helped me get closer to the grain of the problematic situation I had involved myself in. And writing as well as analysing was part of this process from the beginning. As indicated earlier, my initial encounter with the Danish Society of Patient Safety, as well as the execution of the pilot study, gave me some vital first-hand experiences with the policy programme and some of its inherent tensions, which became particularly clear, perhaps, because the specific reporting technologies as well as the more ideological parts of the programme were new to primary care. By turning to the hospital sector, I also turned to an environment where safety policy had become much more naturalized. Although this made possible tensions and inconsistencies less visible, it also gave me the opportunity to study safety technologies in a more embedded and institutionalised form.

In line with the Deweyan axiom that empirical data should "be had under as many different conditions as possible so that data due to differential origins may supplement one another" (1941: 173), the data obtained from my fieldwork only constitute parts of the material that have helped generate the analyses and arguments of the present dissertation. Further insights into the different safety initiatives and the overall patient safety environment in Denmark have been obtained by following a course at the regional level to become a clinic-level patient

safety coordinator, as well as by participating in a number of patient safety and quality conferences and seminars on Danish ground from 2008 to 2012. These insights have been supplemented by the reading of national and international patient safety policy documents, which have supported my understanding of the political rationalities and programmatic elements of the policy regime. Moreover, by turning to classic safety literature, safety science, and human factors research, I have gained knowledge concerning the roots of the safety programme and its particular 'scientific' discourse. As for the medical practice side, extensive readings of primarily ethnographic accounts of medical errors, uncertainty, and clinical experience have improved my understanding of the particular features of medical work, the characteristics of the medical ethos, as well as the internal functions of safety and error management intrinsic to clinical practice.

4.9 Selection of data

As is most often the case in social scientific inquiries, it is only a small selection of the gathered empirical material that is directly referred to and analysed in this dissertation. From a pragmatic stance, such selection can only be weighed in view of the problem under investigation:

> "[D]ata [...] are selected and weighed with reference to their capacity to fulfil the demands that are imposed by the evidential function. In consequence, they are relative to the problem. Apart from connection with some problem, they are like materials of brick, stone and wood that a man might gather together who is intending to build a house but before he has made a plan for building it. He ranges and collects in the hope that some of the materials, he does not yet know just what, will come in usefully later after he has made his plan." (Dewey 1938: 232-3)

Just like electing theories and methodologies, the choice of what data to use, or the facts of the case to present, are selected with a view to bring the inquiry forward. Data and 'facts', then, are operational insofar as they "are selected and described […] for a purpose, namely statement of the problem involved in such a way that its material both indicates a meaning relevant to resolution of the difficulty and serves to test its worth and validity. In regulated inquiry facts are selected and arranged with the express intent of fulfilling this office" (Dewey 1938: 113). In line with this perspective, the empirical cases, clinical situations, organizational myths, etc., which are discussed in this dissertation, have been selected in terms of their ability to enlighten the problem under scrutiny, i.e., the tensions between the requirements of patient safety policy and the practice it seeks to influence.

One part of my observational studies has proven particularly useful in this respect. In three of this dissertation's analytical chapters, I analyse critical incidents that have been subjected root cause analysis (RCA), and in two of these, chapters 7 and 8, the particular RCA and the incident it investigates constitute the central empirical material through which the argument is formed. Thus, in playing this vital role for the arguments of this dissertation, a few reflections should be made on the selection of the RCAs and the specific kind of more 'severe' incidents it investigates. As a safety management tool, the RCA can in many respects be understood as an epitome of the safety programme. By way of strictly standardized steps, it seeks to determine the root causes of a particular incident with the purpose of determining a number of action plans. These plans are to prevent future incidents of similar kinds, ideally through reducing dependability on variation and increasing standardization

by introducing new procedures, guidelines, checklists and technological safety systems.[32]

As for the incidents the RCA typically investigates, these are most often episodes that could have or did result in serious harm to patients or even death. There are obvious practical reasons for choosing the incidents that were investigated during RCAs for this study. With the relatively small amount of observational studies I conducted, it would have been quite a coincidence if severe incidents or errors occurred during my shifts. And if it did happen, it would have been almost impossible to get the same kind of detailed information (written materials, different perspective on the episode, etc.) about the incidents, which the RCA provides. More qualifying reasons can also be found: The incidents treated in the RCA are often quite complicated, ambiguous cases, where it is not easy to determine either causes, responsibilities, or solutions. In relation to ethical problems, Jonson and Toulmin argue that it is only the ambiguous cases which instil moral problems, as the paradigmatic cases are "too clear and simple" to do so. As such, "it is just those situations that are not covered by appeal to any single simple rule that begin to be problematic; and in just those cases our concern to act rightly gives rise to genuinely moral "questions" or "issues" "(Jonson & Toulmin1988: 7). In line with Dewey's understanding of the problematic situation, it is the situation's ambiguity that makes it problematic and in need of inquiry and (value) judgments.

[32] An RCA typically involves the implicated healthcare personnel, management, and patient safety representatives who meet for a few meetings. I attended four such processes of nine meetings in total, and the participants all approved of my presence. In my analysis of these processes and the incidents they investigated, I additionally turned to relevant documents linked to the cases such as the concerned patient's various records.

4.10 On this dissertation's form

The format of this dissertation has caused me considerable difficulties throughout. As a (Danish) PhD student you have the choice to write either a monograph or an article-based dissertation. It appears that this dissertation has ended up somewhere in between. As such, Part II of this dissertation (chapters 5 to 8), can, on the one hand, be considered as four papers, that is, arguments with relatively delineated analytical and/or empirical contributions to quite specific debates, fields, or research environments. To some degree, the four papers testify to the temporal character of academic work, as they have been written at different stages of the PhD and, as such, they testify to the development and refinement of arguments that characterise a long research process (and inquiries in general). Hence, the papers are a result of trying out different propositions and perspectives in relation to the specific problematics at different stages of the study. On the other hand, and most importantly, the four papers are chapters in an ongoing argument. Through somewhat different routes, and through the discussion of different elements of the patient safety programme's engagement with the clinical situation, they seek to contribute to the development of an overarching line of reasoning by treating related empirical cases, developing similar structures of argument, and building on a few more generic analytical tensions. This format has the effect that some points and arguments are repeated throughout this dissertation, in only slightly different shapes.

Another comment on form: As the reader may have noticed by now, this dissertation constantly moves across what is sometimes referred to as 'analytical levels'. As part of this dissertation's pragmatic position, change of and between empirical setting, theoretical or propositional discussions, analytical reflections, etc., is invoked throughout, whenever the investigated problematic requests it. I have

approached the elements that constitute the situation under inquiry from a range of different empirical sites, methods, theoretical propositions, and analytical perspectives – and I have let this show in the narrative of this dissertation as a written product. This strategy is supported by certain methodological trends, as in ethnomethodology and Science and Technology Studies, articulated through the emphasis on 'following the actors' (Hughes 1971; Latour & Woolgar 1979) or on the necessity of studying an object from different places through concepts such as multi-sited (Marcus 1995) or trans-local (Zhan 2009) ethnographies. And as remarked above, the 'multiple' sites of this study are not limited to the sites of the empirical studies (the two different healthcare settings), but are equally constituted by looking, for instance, into previous empirical studies of medical error, alternative stances on present safety policy and to practical philosophies' use of the medical example.

One of the main advantages of the pragmatic stance on methods, which includes flexibility and eclecticism on the one hand and significant attention to discipline, rules of inquiry, and technical skill on the other, is that it stresses the timely character of research without painting a false picture of a linear research process where every methodological and analytical decision is decided on beforehand. Pragmatism accepts doubts, changes of heart, and the fact that you get wiser throughout the study as productive features of the process, not as failures. Such honesty might cause the pragmatic approach to be conceived as the easy way out. But as both Dewey and Becker argue, this is hardly the case, as a pragmatic stance requires you to continuously reflect upon, argue for, and possibly revise your methodological (and theoretical) choices. At the same time, the pragmatic stance on methods is not an argument that anything goes in terms of tools and styles, and neither is it an argument for 'messy texts' (Marcus 1998). Rather, pragmatism highlights the structured inquiry, and the "ordered presentation of the subject

matter" of the research (Mead, 1938[1884]: 97); and it recognizes the use of tools and techniques that are developed through experience and situated in specific genres of research. As quoted earlier, in being a "whole theory […] determined by the attempt to state what conditions and operations of inquiry warrant a ""believing," or justify its assertion as true" (Dewey 1941: 181), pragmatism is anything but sloppy in its attitude to scientific reasoning and the methodology of the inquiry.

PART II

5. A Culture of Blame? Revisiting Previous Accounts on Safety

Not that long ago, literature on medical errors was published under headings such as *The Unity of Mistakes* (Paget 1988), *The Incompetent Doctor* (Rosenthal 1995), and *Forgive and Remember* (Bosk 2003 [1979]). Such titles are not common in work on medical errors and patient safety today, and within the present patient safety programme, they would indeed be inconceivable. Instead, *mistakes* are replaced by 'adverse events' or 'clinical incidents'; *incompetence* is replaced by a focus on systemic failure; and previous attentiveness to local processes of responsibility and *forgiveness* is replaced by 'systems learning' and 'non-blame'.

Taking point of departure in the safety programme and its demands for a break with 'the old ways of naming, blaming, and shaming' to pave the way for a new paradigm, this chapter revisits accounts of medical practice, safety cultures, and

medical error formulated before the inception of the patient safety agenda. By revisiting these classic accounts, dominant assumptions of the policy programme and its sources can be challenged. Not only does the one-sided image of a 'blame-culture' dissolve when taking a closer look at the collegial and informal ecology of safety and error management in clinical practice, but the accounts also challenge the policy programme's dichotomies between individual responsibility and blame on the one hand and a blame-free systemic perspective on the other. Instead, a constitutive and subtle relationship between the healthcare professional and the medical error is identified, closely related to an awareness of the inherently fallible nature of medical work. Especially, descriptions of the delicate and informal structures of monitoring, classifying, and managing different sorts of errors in the professional community seriously challenge one-sided images of safety practices as 'blame cultures' and cast new light on recent safety policy, its blame-free efforts, and the changes such efforts institute in more traditional modes of conduct in healthcare.

The arguments presented in this chapter are derived from a variety of previous studies of medical error, medical work, and safety culture conducted from the fifties to the mid-nineties, of which four studies are presented in greater length (Bosk 2003[1979]; Fox 1957; Paget 1988; Rosenthal 1995). Criteria for this selection relate to the details and depths of the analyses delivered in these studies, the general representativeness of the key issues they present, as well as with regard to their reception. There are, in fact, remarkably few comprehensive studies of medical error and safety cultures and, as such, these studies are some of the most commonly referred to within patient safety literature. The presented studies were conducted at different times, in different places, under different methodologies. Moreover, they study different medical specialities and have somewhat different study objects and aims. While the first two studies address the fallible nature of medical knowledge and practice, as well as discuss the dilemmas of the medical ethos following from

this (Fox 1957; Paget 1988), the last two focus on medical culture and especially on the regulation of medical error by informal self-control mechanisms in healthcare (Bosk 2003[1979]; Rosenthal 1995). Although the four studies are dissimilar in many respects, the set of assumptions and the constellation of concerns on which they are hovering are indeed quite similar. Granted that this chapter's analysis will also pause at some of the variations, the presented analysis primarily attend to the analytical and empirical similarities between the studies. In the remainder of this chapter, the current safety regime, its sources, and its primary assumptions are briefly laid out, after which each of the previous studies are presented. The chapter ends with a discussion on how these classic accounts challenge some of the core assumptions of the present safety programme. It concludes that these insights can help scrutinize some important changes in the clinical situation, which follows from present safety managerial efforts.

5.1 Naming, blaming, and shaming: Myths about the old ways

"We need to move from a culture of shame-and-blame – where a hunt is conducted for the offender, someone is fired, and we wind up repeating our mistakes – to a blame-free mindset. (Woodward et al. 2009: 1291). This is the typical structure of the repeated argument that the present safety programme rests upon. The argument is built on a specific assumption about human reactions to error; namely, as it is put in *To Err is Human*, that "[t]he common initial reaction when an error occurs is to find and blame someone" (Kohn et al. 2000: 49). These types of assumptions draw heavily on safety engineering, human factors studies, and cognitive psychology, and especially on professor of psychology James Reason's work on human errors (1990, 2000). By drawing a sharp line between a so-called 'person approach' and a 'system approach', Reason argues for the existence of two radically different ways of understanding human error in organizations:

> "The human error problem can be viewed in two ways: the person approach and the system approach. Each has its model of error causation and each model gives rise to quite different philosophies of error management. Understanding these differences has important practical implications for coping with the ever present risk of mishaps in clinical practice." (2000: 768)

Reason argues that followers of the person approach, where the individual worker is in focus, "tend to treat errors as moral issues, assuming that bad things happen to bad people" (2000: 768). Risk management methods here include "disciplinary measures, threat of litigation, retraining, naming, blaming, and shaming" (Reason 2000: 768). The system approach, on the other hand, can be described as follows:

> "The basic premise in the system approach is that humans are fallible and errors are to be expected, even in the best organisations. Errors are seen as consequences rather than causes, having their origins not so much in the perversity of human nature as in "upstream" systemic factors." (Reason 2000: 768)

This argument establishes an understanding of errors as systemic, i.e., that errors stem from the organizational set-up, or the system, instead of individual incompetence or wrongdoing. Errors might well be caused by human factors such as inattentiveness, stress, cognitive slips, and so on (and they most often are from this perspective), but they are most effectively dealt with by reorganizing the system so the likelihood of such errors are reduced, rather than trying to affect 'human factors' or blame individuals.

What is evident in Reasons' text, as in most patient safety literature, is that the 'person approach', which is described as "a longstanding and widespread tradition" (Reason 2000: 768), is automatically ascribed to medical practice as the dominant

way of reacting to medical error. As Reason puts it; "[t]he person approach remains the dominant tradition in medicine, as elsewhere" (Reason 2000: 768).

As such, it is on the assumption that "we have failed to design our systems for safety, relying instead on requiring individual error-free performance enforced by punishment" (Leape et al. 1998: 1444) that much mainstream patient safety literature is built. Therefore, the need to go from a healthcare system dominated by the person approach to one dominated by the system approach becomes urgent. And more specifically, 'blame-cultures' should, via blame-free reporting and analysis of critical incidents, be replaced by a 'learning culture'. In the following quote from *To Err is Human*, the logic of the argument is laid out:

> "[H]ealth care organizations must develop a systems orientation to patient safety, rather than an orientation that finds and attaches blame to individuals. It would be hard to overestimate the underlying, critical importance of developing such a culture of safety to any efforts that are made to reduce error. The most important barrier to improving patient safety is lack of awareness of the extent to which errors occur daily in all health care settings and organizations. This lack of awareness exists because the vast majority of errors are not reported, and they are not reported because personnel fear they will be punished." (Kohn et al. 2000: 157)

The dominant line of reasoning is then that, because of fear of punishment, healthcare professionals do not report errors, and because errors are not reported and, hence, are not visible, healthcare professionals are not aware of the fallible nature of medical work. Therefore, blame-cultures must be hindered by introducing a systems approach, which will hopefully increase error reporting, which will increase error awareness among healthcare professionals.

5.2 A culture of doubting: Fox on acting with uncertainty

A way to test these assumptions is to consult some classic texts on the safety cultures in healthcare. First, I will turn to Renée Fox, a prominent medical sociologist with a particular focus on important tensions involved in practicing as a physician, not least the tensions related to the links between uncertainty, risk, and professional responsibility. In 1957, Fox wrote an article with the title "Training for Uncertainty" built on interviews with student physicians. Fox stresses that, while becoming a physician is certainly about being educated in medical knowledge, it is just as much an education in "the uncertainties of medicine and how to cope with them" (Fox 1957: 207). While Fox's text is not directly about medical errors and safety culture, it nevertheless illustrates how uncertainty and coping with the possibility of failure is a significant and intrinsic part of being a clinician. According to Fox, this uncertainty is both due to limitations in medical knowledge and to personal ignorance or ineptitude; in fact, it is often difficult to distinguish between these two (Fox 1957: 208). Fox argues: "It is inevitable that every doctor must constantly cope with these forms of uncertainty and that grave consequences may result if he is not able to do so" (1957: 208). According to Fox, the attitude of the physician, and what makes coping possible, is developed by an 'experimental point of view' that makes it evident that medicine "is something less than a powerful, exact science, based on nicely invariant principles" (1957; 214). During the years a student studies to become a physician, growing competence, more experience, and better skills in the techniques of medicine will decrease uncertainty in relation to the student's own skills. As the student's perspective on uncertainty changes, he gradually acknowledges the inherent fallibility of medical knowledge and therefore acquires a more "affirmative attitude" (Fox 1957: 219) towards doubting; he learns to tolerate uncertainty. With reference to a so-called "philosophy of doubting" (Fox 1957: 220), Fox describes a medical culture able to deal with doubts and

uncertainties in a 'forthright manner', where the physician in his student years is expected, or even morally obliged, "to be uncertain about what he knows and candid about his uncertainty"(Fox 1957: 221). This openness is later supplemented or even replaced by the necessity of adopting 'a manner of certitude' to be able to 'act like a savant'. Fox describes:

> "[I]f he is to meet his clinical responsibilities, he cannot allow himself to doubt as openly or to the same extent that he did during his preclinical years. Instead, he must commit himself to some of the tentative judgments he makes and move decisively on behalf of his patients." (Fox 1957: 227)

The need to impose some kind of temporary certainty in order to act is established, amongst other things, through a particular idea of and faith in clinical perception. In line with the Foucauldian notion of the medical gaze, Fox describes how the medical student is "being asked to glean whatever information he can from the processes of looking, feeling, and listening" (1957: 214). In this way, becoming a doctor is about learning a particular way of perceiving:

> "For, the ability to "see what you ought to see"; "feel what you ought to feel", and "hear what you ought to hear", students assure us, is premised upon "a knowledge of what you're supposed to observe", an ordered method for making these observations, and a great deal of practice in medical ways of perceiving."(Fox 1957: 214)

And, Fox continues, "in all of these situations, students are often expected to see before they know how to look or what to look for" (Fox 1957: 214). The idea that medical perceptiveness and reasoning are somehow gifts of the clinician rather than something that is gradually trained and learned easily leads to self-blaming and questioning by the student when a sign is missed (1957: 215). It is therefore vital to

recognize, Fox stresses, that becoming a physician is all about apprenticeship. It is only through "direct contact with instructors" and by "listening to experienced doctors reason out loud" (1957: 227) that a physician learns, not about medical knowledge, but "how a doctor organizes and uses his information" (1957: 227); that is, learning about practical reasoning, clinical judgment, and, not least, how to act with uncertainty.

5.3 Being wrong without being guilty: Paget on 'acting as if'

The necessity of acting, even with a high degree of uncertainty, is further investigated in Marianne Paget's *The Unity of Mistakes: A Phenomenological Interpretation of Medical Work* (1988). Within patient safety circles, Paget is well known mostly because of her personal story: While studying medical errors she was to become a victim of her very research subject as her chronic back pain turned out to be a misdiagnosed and rare cancer from which she later died. Her study, however, is interesting for other reasons, not least for its detailed analysis of the nature of medical mistakes as well as of the constitutive relation between the mistake and the persona of the healthcare professional. When Paget uses the term "mistake" to label her main study object, it is not a coincidence. Having an original meaning in the nature of 'to take wrongly' or 'to take a wrong turn or path', the term 'mistake' denotes an act that goes wrong. As Paget puts it: " 'Mistake' is one of the few terms we have that expresses our recognition that something we initiated went wrong" (1988: 11). In this way, she draws attention to the need to specify different forms of medical error and, as such, her "topic is far broader than errors of "negligence"; it encompasses a far wider range of medical errors"(Paget 1988: 8). Paget's focus on the mistake gives rise to some important insights. Firstly, the notion of mistake involves a significant issue of time. Mistakes are "dynamic, intimately bound up with time as they unfold" (Paget 1988: 18), she argues, and continues: "A mistake follows

an act and identifies the character of an act in its completion. It identifies its incorrectness or wrongness. An act, on the other hand, is not wrong; it becomes wrong or goes wrong" (Paget 1988: 7). Secondly, by choosing the notion of 'mistake' rather than, for instance, 'error' or 'incident', Paget is interested in studying the moral tensions related to the personal involvement in "something that happened wrong with respect to another person's life" (Paget 1988: 12). In this way, she asks as to the moral dimensions of, on the one hand acting in good faith with the possibility that you later realize you were wrong and, on the other, the risk that such 'acts going wrong' will have catastrophic consequences for other people's lives; a moral dimension to medical work which Paget labels 'a complex sorrow' (Paget 1988: 7). The time dimension of the mistake, and the moral tension that follows from it, indicate that discussions about intentions, fault, blame, incompetence, and negligence might not be straightforward matters in medical practice. Making a mistake from this perspective, or 'an action-becoming-wrong', is not necessarily a question of negligence or incompetence, as you might well make competent decisions but still be mistaken. Neither is it, however, a systemic failure resulting from the interaction of systemic components or human factors such as inattentiveness in the safety programme's optic. Instead, the instances Paget addresses concern deliberate acts or decisions.

By neither being a clear case of blame-free 'systemic' error or a case of negligence, she touches upon what seems to be a blind spot for the present safety regime. This is, however, not just any blind spot. The possibility of mistakes (or 'acts going wrong') is, according to Paget, defining for medical practice in general and for the ethos of the healthcare professional in particular. At this point, Paget delivers a strong characteristic of clinical work, that is, "the process of acquiring, interpreting, managing, and reporting the disorders of human illness" (Paget 1988: 34) as an 'error-ridden activity'. What she defines as "the essential developmental nature of

clinical work" (Paget 1988: 27) makes it intrinsically uncertain, experimental, and therefore also prone to error. And it is from this description of medical practice as error-ridden that Paget poses her main problem; namely, "given the inevitability of mistakes, what is medical work like and what is it like to be a person who does this kind of work?" (Paget 1988: 17). The term 'acting as if' can sum up her answer to this question; because, although clinical work can draw on scientific knowledge and probability measures, "these probabilities do not predict the specific instance, and it is the specific instance that matters" (Paget 1988: 46). With specific instances, that is, individual patients, one can only act and hope for the best: "the only way it [medical knowledge] can be tested is in acting it out, acting as if it were accurate or plausible or revealing" (Paget 1988: 52). When 'acting as if' one risks making mistakes, and with this comes the 'complex sorrow' that designates the moral tensions follows exactly from the realization that mistakes cannot be avoided. It is these intrinsic features of medical work that Paget wishes to draw attention to in order to heighten awareness about medical work's inherently fallible nature.

In Paget's characterisation of medical work as error-ridden, she draws heavily on Goroviz and MacIntyre's "Toward a Theory of Medical Fallibility" (1976), where they define medicine as a 'science of the particular'. As such, there are basic problems associated with the use of probabilities since there are "inherent limitations in the predictive powers of an enterprise that is concerned essentially with the flourishing of particulars, of individuals" (Goroviz & MacIntyre 1976: 64). Working with particulars, with individuals, means that "every therapeutic intervention is an experiment in regard to the well-being of that individual patient" (Goroviz & MacIntyre 1976: 64). It is this experimental character of medical work which establishes "the necessary fallibility of the individual physician" (Goroviz & MacIntyre 1976: 64). By determining the nature of medical work as inherently fallible and experimental, by addressing the close connection between acting and

thinking in medical practice, and by stressing that medical reasoning always takes point of departure in the individual patient and the particularities of the situation at hand, Paget and her inspirational sources echo some of the practical philosophical traditions of thinking, which I laid out in Part I of this dissertation.

Paget's analysis of the temporal and moral ambiguities of the mistake, the fallible nature of medical work, and the 'complex sorrow' accompanying the necessity of 'acting as if' form a suitable beginning for approaching the subtleties of the clinical situation, and the constitutive relationship between medical error, medical work, and the ethos of the healthcare professional. The following two accounts address this constitutive relationship in greater lengths by approaching the internal control mechanisms for monitoring, defining, and managing errors within the professional community.

5.4 Technical and normative errors: Bosk on professional self-control

In 1979 Charles Bosk published an ethnographic study titled *Forgive and Remember: Managing Medical Failure* (Bosk 2003, 2nd edition), in which he follows the training of resident surgeons in a US hospital to investigate social control mechanisms and reactions to medical errors. The overall argument following from the study is based on the observation that whether a resident's failure was forgiven by the attending surgeons or whether it had sanctionary consequences of some sort could generally be determined by the character of the failure in question. On the basis of this observation, Bosk divides failure into technical error and normative error, where the first is described as failure, for instance, to apply medical knowledge incorrectly and the second as failure to follow professional codes of conduct. The study showed that while technical error was the occasion for support and forgiveness, normative errors were occasion for repressive sanctions or banishment from the medical elite.

As such, Bosk argues that the "social control of the professional subordinates technical performance to moral performance" (Bosk 2003: 168). Bosk explains this difference by referring to the specific ethos of the healthcare professional; namely, that as long as you can claim to have done everything you possibly could, failure is forgiven: "The individual claims his conduct is beyond question – that he did everything any other member of his profession might have done in similar circumstances – and the failure is accidental, incidental, and random" (Bosk 2003: 170). As the attending surgeons forgive these errors, it creates a sense of obligation in residents "to work harder, to dedicate oneself to patient care, and to improve performance" (2003: 252). The normative error, on the other hand, is characterised by doing 'less' than everything: "Moral error breaches a professional's contract with his client. He has not acted in good faith. He has done less than he should have" (Bosk 2003: 171).[33] As such, the error is thought of as unbecoming and blameworthy.

At least two points should be made about Bosk's study when compared to present day safety policy. Firstly, to Bosk the majority of medical errors are 'technical' and could have happened to anyone in the same situation, and, as such, they were approached as 'accidental, incidental, and random' – not unlike the idea about systemic failure and adverse events of the present safety paradigm. Consequently, there was a basic forgiveness tied to the most dominant kind of error and no dominant culture of 'naming, blaming and shaming'. Secondly, although a certain

[33] A similar typology is suggested by Eliot Freidson in *Doctoring Together* from 1975. Here, he differentiates between so-called 'normal mistakes' and 'deviant mistakes'. Normal errors are described as unavoidable events, while the 'deviant mistakes' are due to a practitioner's "negligence, ignorance, or ineptitude, reflecting upon his lack of basic or reasonable competence, ethicality, conscientiousness, and judgment" (Friedson 1975: 131). According to Friedson, physicians systematically deny or keep their mouths shout about errors at work. If they discus errors, it is 'normal errors', 'excusable errors', or 'unavoidable errors'.

amount of penalizing did take place in clinical practice, it was only used in very particular cases where the healthcare professional failed to live up to his responsibilities and 'act in the patient's interest'. These cases then served as important moral regulatory mechanisms, Bosk argues, and he identifies residency training "as a moral education, the purpose of which is to teach young doctors the standards of practice" (Bosk 2003: xvi). If residents were not able to live up to the moral demands, it had consequences within the professional community, and, as such, the "failure to forgive establishes the normative boundaries for professional behavior" (Bosk 2003: 252). Whether these sanctions should be understood as a problem for clinical practice or 'culture' under the heading 'naming, blaming and shaming' is indeed questionable. Rather, Bosk points to the important regulatory function of professional error management for establishing and setting the boundaries for the professional and moral conduct of clinicians. In the 1990's, Marilyn Rosenthal takes up these questions as she proceeds to analyse the character of the different co-collegial mechanisms for monitoring, categorising, and responding to error in medical practice. Specifically, she addresses informal and subtle professional structures for managing incompetence and negligence, and she thereby touches upon one of the more important concerns that is largely ignored by recent safety policy.

5.5 A problem of incompetence: Rosenthal on medical self-regulation

The last source to be discussed is Marilyn Rosenthal's (1995) *The Incompetent Doctor: Behind Closed Doors*. Although less than 20 years old, the title of this publication would indeed be inconceivable in mainstream patient safety literature today. Starting with the argument that medical autonomy is justified primarily by its self-regulating mechanisms, Rosenthal sets out to investigate how rigorously the medical profession regulates itself and this includes, Rosenthal adds, "dealing with exigencies

of someone who is faltering, unable or potentially unable to carry out work in a reasonable manner" (Rosenthal 1995: 7). As such, she touches upon some of the social control issues of Bosk's 1970's US study of resident surgeons, by focusing on general practitioners in the UK in the 1990's. Rosenthal's argument about the nature, the strengths, and the problems of medical self-regulation offers an interesting comparison to the present safety regime, not least because the informal mechanisms of professional self-regulation described in the study are strikingly far from pictures painted in present safety policy of an environment of 'naming, blaming and shaming'. Rather, Rosenthal finds that self-regulating mechanisms are based on a strong 'shared vulnerability' amongst healthcare professionals, an understanding of 'that could happen to me', which, together with an appreciation of the inherent fallibility of medical practice, makes understanding and forgiveness easy (Rosenthal 1995: 20-21). This understanding and forgiveness, which she also refers to as "a norm of non-criticism" and "a conspiracy of tolerance" (Rosenthal 1995: 20-21), does not only apply to inevitable and technical errors but also to incompetence, which she defines as "lack of knowledge and/or skill; various forms of impairment; temporary personal problems or burnout; and personality conflicts" (Rosenthal 1995: 94). Rosenthal's study describes a number of informal and quasi-formal methods of responding to incompetence, or what she determines as 'problem-doctors', within the professional community. This involves, for instance, quiet chats or 'protective support', where work is silently taken from the doctor as "an act of friendly collusion" (Rosenthal 1995: 58). Only if these collegial mechanisms fail are managers brought in: "when the informal and quasi-formal professional efforts do not produce desired results or break down, managers are brought more directly, if reluctantly, into the case" (Rosenthal 1995: 70). That would be the time for naming and blaming, one might think, however, it is not, according to Rosenthal. Rather, discrete internal or external reviews are conducted

"in such a way that the doctor is not overtly under criticism or attack" (Rosenthal 1995: 73), or management will try to negotiate early retirement – described as 'a dignity bribe' (Rosenthal 1995: 78). Suspension is only in very few cases as a measure against 'problem doctors' – and these are often the (only) cases that become public[34]. In this way, Rosenthal describes a local and primary informal system of regulating error embedded in clinical practice and based on a sense of professional and social community. As such, errors are defined, classified, and dealt with locally, gently, and behind closed doors. According to Rosenthal, this primary informality and closedness is not a problem; rather, it is, taking the nature of medical work into consideration, the most productive way of dealing with problems of incompetence.

There are, however, a number of challenges that are consequential for the effectiveness of the self-regulating measures. Rosenthal points to an inherent dilemma with professional autonomy; namely, that on the one hand, the nature of clinical work and medical error, that is, the "permanent uncertainty, necessary fallibility, shared personal vulnerability, understanding and forgiveness" (Rosenthal 1995: 27), indicates that the profession itself is indeed in the best position to pass judgment on clinical and professional behaviour. On the other hand, a number of mechanisms constrain this judgment. For instance, social control mechanisms can be understood as contrary to collegiality norms and support: "[*t*]*he norms of professional*

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[34] Rosenthal's book is based on empirical material from a study conducted in both the UK and Sweden. While Rosenthal's analyses predominantly refer to the British material, she shortly refers to the Swedish material in comparison to the British case. In the Swedish case, she concludes that "there is even greater reluctance to criticize, not only because of cultural norms that discourage public criticism of anyone. Problem doctors are a 'forbidden' subject, a subject of shame that one of their numbers should be causing problems or found to be incompetent" (Rosenthal 1995: 106). She further suggests that the 'export' problem is more evident in Sweden, where jobs are changed more frequently.

etiquette and equality among peers make it difficult to pass judgment on a fellow doctor" (Rosenthal 1995: 78). Moreover, the specialized character of medical work makes criticism hard to justify. Such challenges can result in delayed or absent action in dealing with incompetence. What is more, the informal processes introduce an element of chance, as the effectiveness of these processes is likely to be dependent on the quality of interpersonal relationships and management skills in the specific situation. Rosenthal therefore concludes that informal processes of co-collegial problem-solving, although preferable, are not always enough. Rather, she points to the necessity of more quasi-formal procedures to support the already existing informal processes of social control, especially the creation of a stronger alliance between management and professionals. The best results are obtained when management and healthcare professionals work effectively as a team, that is, when managers "support and aid efforts of colleagues to deal with these problems themselves, and behind closed doors" (Rosenthal 1995: 103). Thus, Rosenthal suggests that informal mechanisms are the best answer to the difficult and ambiguous task of maintaining and supporting the professional ecology of error management *and* strengthening the possibilities of reacting to incompetence and negligence:

> "[I]nformal mechanisms are preferable for many reasons that range from considerations of morale to conserving monetary and time resources and including individual and social investments in medical education. As in all social institutions and organizations, formal rules and procedures must exist as a last resort, as a declaration of possible use in extreme situations. But to use informal approaches for problems is more humane and less costly. To use informal approaches effectively, however, requires skill." (Rosenthal 1995: 107)

This quote is, I believe, an appropriate occasion to discuss how these previous perspectives on medical error and error management correspond to present managerial efforts, where formal rules and procedures are not understood as the last but as the first resort.

5.6 Busting the myth of the 'person approach'

Having come to the end of analysing the classic texts on clinical safety culture, I will now address their contemporary relevance. In spite of the differences in case, time, place, problem, etc., in the studies of medical error laid out in this chapter, a number of striking similarities in the substance of arguments can be found that contrast current notions of error, safety, and medical practice in patient safety literature and health policy. Presented as 'the new paradigm' (Woodward et al. 2009), the patient safety programme's systems perspective on error is said to be radically different from an previous 'person approach' to error (Reason 2000). The accounts of medical error given in this chapter undermine this claim by contesting the myth of a 'person approach' by questioning how new and radically different a systems approach to medical error is in healthcare practice, and by challenging the possibility and fruitfulness of sharply dividing error-definition and -management into these two radically different approaches.

None of the previous accounts presented in this chapter describe the immediate reaction to error as one of blaming individual persons. Rather, they describe how the healthcare professional's basic notion of error is quite 'systemic', that is, understood in relation to the complicated interplay between individual and surroundings, as well as the inherent fallibility of medical work and the medical 'system', as it were. As such, errors are often understood by the medical profession as "accidental, incidental, and random" (Bosk 2003: 170). Or, to quote Eliot

Freidson, some are described as *normal errors*[35], which "are less mistakes than they are unavoidable events; they are not so much committed by the doctor as they are suffered or risked. They do not reflect on the physician's competence so much as his luck" (Freidson 1975: 131). As Rosenthal's work indicates, even the term 'adverse events' was commonly used before the inception of the safety programme:

> "When doctors think about mistakes or accidents in their practice, they emphasize the uncertainties, the importance of multiple mitigating circumstances, the existence of known risks; they accept the inevitable variability in practice. Their widespread preference for the term 'adverse events' for accidents can be understood." (Rosenthal 1995: 19)

According to these previous accounts, it is through this 'systemic' lens, and through a shared understanding of the inherent fallibility of medical work, that errors and mistakes are most often acknowledged, talked about, accepted – and forgiven.

Contemporary studies of medical practice suggest, in similar ways, that "rather than favouring an individualized or 'person-centred' perspective, doctors readily identify 'the system' as a threat to patient safety" (Waring 2007b: 29). However, Waring continues, this understanding of 'the system' is different in important ways from the 'systems thinking' of the programme, as it is based on "first-hand experience of clinical work and the wider culture and discourse of medicine" (Waring 2007b: 45), instead of abstracted principles of human factors research and safety science.

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[35] Friedson's account of *normal errors* from 1975 has important affinities to Charles Perrow's *Normal Accidents* from 1984, which, as noted, has served as an inspirational source for the present safety paradigm and its systemic perspective (see Kohn et al. 2000). However, Friedson's account is not just a description of a specific type of error. It is also a description of a possible rhetorical strategy involving the use of the conception of normal errors to excuse errors as unavoidable. Although Perrow's book does not touch on the possibility of 'misusing' the idea of normal accidents, Perrow recently stated that he, at the time of the book's publication, was anxious that the argument could be used to excuse malpractice (personal comment, 18th of September 2012, internal seminar at Department of Organization, Copenhagen Business School).

Therefore, when healthcare professionals think in terms of systems, it is not "a reflection of the prevailing safety discourse or knowledge of policy, but reflects a tacit understanding of how services are (dis)organized" (Waring 2007b: 29).

Interestingly, it is exactly the profession's basic understanding of the system as fallible and errors as adverse, and from an individual perspective, unavoidable, which partly constitutes the so-called problem of incompetence addressed especially by Rosenthal. In combination, the specific features of professional etiquette, the shared understanding of the fallible nature of medical work, and the inevitability of errors make individual mistakes and incompetence hard to define, recognize, judge, and, not least, manage:

> "There is no necessary relationship between making mistakes and incompetence. All doctors make mistakes and accept them as part of normal medical practice. It is only when something extreme occurs, the egregious mistake, and particularly if it happens more than once, and where a doctor does not appear to learn from his mistakes, that suspicion of incompetence arise in the minds of colleagues." (Rosenthal 1995: 99)

The acceptance that it is difficult to define and sort out medical errors makes negligence and incompetence hard to determine: It is difficult to separate mistakes (an act going wrong (Paget 1988)), accident, 'systemic' error, and so on, from incompetence, and it might be even more difficult to decide which kinds of incompetence to act on and in what ways. Impaired doctors (alcoholic, mentally, or physically ill, etc.) or doctors breaking the law might be relatively easy cases, but what about the doctor who is getting older and fading in terms of skills? Those who are stressed or growing tired? Rosenthal concludes: "There is no clear-cut standard for competence; there is no clear-cut way to distinguish between accidents, mishaps, mistakes, errors" (Rosenthal 1995: 37). This is why healthcare professionals are only

willing to define and judge mistakes in extreme cases, however, "even here mitigating circumstances are usually discovered" (Rosenthal 1995: 99).

In this way, the problem of incompetence refers to all the reasons why medical culture is not, according to these previous accounts, dominated by a culture of 'naming, blaming and shaming'; namely, the difficulty of defining and assigning the negligent act; the acceptance of the inevitability of errors; the acknowledgment of the 'systemic' causes for error; and the mitigating circumstances. Therefore, Rosenthal argues, the problem is not too much blame, but in some cases, perhaps, too little. This points to a derived concern addressed also by several other previous accounts; namely, that the wide acceptance of error as 'systemic', indefinable, and non-assignable can serve additional purposes as strategies for normalizing and excusing incompetence, negligence, or wrongdoing in healthcare (Freidson 1975; Mizrahi 1984).

5.7 Implications for present safety management

In Rosenthal's study from the mid-nineties, she addresses the increasing managerial reform pressures in the UK National Health Service (NHS). In general, she welcomes these changes and expresses faith that the new managerial efforts will strengthen the medical community's ability to deal effectively with the problem of incompetence, as described above. Hence, she states that "[m]anagers at all levels […] express the opinion that recent changes in the NHS will improve their and the professional's ability to deal more effectively with problem doctors and incompetence" (Rosenthal 1995: 103). Because, although professional self-regulating mechanisms for monitoring, classifying, and managing different sorts of errors are indeed present and functioning in informal and gentle ways, this professional safety and error management ecology is a delicate practice which might well need

nurturing and support. Therefore, these new managerial improvements could, Rosenthal believes, fruitfully consist of a commitment to "more research, more systematic attention and more professional training" (Rosenthal 1995: 107) of healthcare professionals in identifying impaired or difficult personnel – informally and behind closed doors. She equally stresses that "during the medical education process, there should be frank and open discussion of the problem doctor and the inculcation of a norm of self-appraisal (along with a norm of lifelong peer review) so that doctors will not resist the admission of impairment or problems of competence" (Rosenthal 1995: 145). In this way, Rosenthal wants to support and strengthen the already existing structures of informal professional self-regulation of errors in clinical practice.

Four years before Rosenthal's study, the Harvard Medical Practice Study had established that 3.7 per cent of hospitalized patients in America experience adverse events (injuries caused by medical management) (Brennan et al. 1991; Leape et al. 1991). Today, this study is largely seen as a forerunner of the safety movement in general and to the American Institute of Medicine report *To Err is Human* in particular. Interestingly, however, the main safety management problem expressed in the Harvard report is not on closer inspection a problem of blame-culture but, to a very large extent, a problem of negligence[36]. It is found that 28 per cent of the recorded adverse events were due to negligence defined as when "the standard expected of reasonable medical practitioners" is not met (Brennan et al. 1991: 374). Moreover, it is suggested that the percentage of events attributable to negligence

[36] As I will return to in the final sections of this dissertation, the Harvard study points to a large variety of cause for error, problems of management, and different solutions in which both more systemic perspectives are included as well as questions of negligence and management thereof. Of these, the problem of negligence is determined as "even more disturbing" than the number of adverse events in general (Brennan et al. 1991: 373).

increase with the severity of injuries. As such, more than 50 per cent of deaths were due to negligence. Therefore, the study group points to the need for education and the "development of better mechanisms of identifying negligent behavior and instituting appropriate corrective or disciplinary action" (Leape et al. 1991: 383). In this way, the problem of incompetence or negligence was not unheard of in the early days of the safety movement.

However, just five years after Rosenthal's UK study of the problem of incompetence, the paradigm for safety management and 'self-appraisal' had radically changed in the UK. In *An Organization with a Memory*, the British equivalent to the American *To Err is Human,* the strategy for educating staff in safety issues is formulated in the following manner:

> "[A]ll those responsible for the initial and continuing training and education of doctors, nurses and other clinicians should address the development of an approach to frank self-appraisal. This will involve exposing clinicians to the appropriate culture of blame-free assessment and learning at every level, from undergraduate through postgraduate training to life-long learning." (Department of health 2000: 82)

As such, Rosenthal and the patient safety programme are in agreement in suggesting a strengthening of staff education, but the reasons for this, as well as the proposed tools, are poles apart. Where Rosenthal seeks to enhance the professional community's ability to deal with incompetence by creating a stronger focus on and a more open debate about incompetence, malpractice, and 'the problem doctor', the safety programme is interested in training healthcare professionals in 'appropriate' blame-free attitudes and in approaching errors as systemic. As a result, Rosenthal's expectations in relation to the new reforms' capacity to strengthen professionals and managers' abilities to deal with incompetence was apparently not met; instead, it

seems that such abilities may have been weakened. Recent empirical studies of the root cause analysis as a standard blame-free safety technology back this hypothesis (Iedema 2006; Mengis & Nicolini 2011).

Hence, looking at the previous accounts, it seems that the structure of problem and solution have been switched over in the recent safety programme's assumptions of medical culture; the safety problem of 'the old days', as it were, is not a problem of 'naming, blaming and shaming' but rather its opposite; it is the difficulty of identifying and handling malpractice in an environment where errors and mistakes are, in general, easily, and sometimes too easily, forgiven because of a shared understanding of medical work as fallible and medical error as indefinable, and because of the inherent vulnerability of the medical ethos. The reforms asked for in these accounts, if any, are reforms that strengthen the professionals' ability to identify malpractice or 'normative errors' and deal with them in informal, gentle yet effective ways. Enforcing a formalised 'systemic' and blame-free perspective on error in an environment where most errors are already understood as not addressable, indefinable, technical, normal, and so on, might obscure the already existent but delicate structures for professional self-control, which, it seems, are likely to have been developed over decades.

Other important lessons from the classic accounts for current safety management concern the large number of grey areas that fall between the clear-cut 'systemic error' and the clear-cut case of negligence, as well as the hard work and the informal co-collegial processes that go into identifying and classifying what type of errors are to lead to what type of responses. One of the main constituents of the problem of incompetence concerns exactly this difficulty of identifying incompetence, which is why some of the presented accounts argue for safeguarding and strengthening the processes of and abilities to identify malpractice within the professional community.

In opposition to this, it is presupposed from a blame-free perspective that it only makes sense to address issues of responsibility and blame in very rare cases of negligence. It is therefore a possibility that blame-free strategies risk interfering with and inhibit processes of identifying malpractice because they remove the possibility of addressing different sorts of professional, moral, and individual involvement with and responsibility for errors. Equally important, the present programme assumes that the few cases of negligence are so easily identified that they can be determined as negligence before they are treated within the programme (e.g., in a root cause analysis process where blame is banned at the outset). In order to be managed, the negligent act must be so clear-cut that it falls outside the present patient safety system and should be handled by other authorities[37]. This happens in rare cases where, for instance, alcoholism or unlawful activities are easily identified as the causes of errors. Consequently, present policy reforms are roughly speaking presenting two possible positions a healthcare professional can possess in relation to error; either you are guilty of negligence or the error is to be understood as systemic from a blame-free perspective, and they maintain that the cases of negligence are easily detectable. In this way, present safety policy risks missing all the errors 'in-between', such as Paget's mistakes i.e. competent acts going wrong, or, one would expect, the milder cases of Bosk's normative errors, as well as the serious but less easily identifiable cases of negligence. Hence, the delicate structures for professional identification, regulation and self-control of errors and malpractice risk being obscured.

[37] In chapters 6 and 7 of this dissertation, I attend to concrete root cause analysis processes, where issues of responsibility and blame, and perhaps even negligence, were at stake however untreated and related to because of the overall 'blame-free' heading of the root cause analysis as a safety management tool.

A last point about current attempts to eliminate blame should be made. In Bosk's preface to the 2003 edition of his study on medical error and social control mechanisms from 1975, he comments on the new blame-free paradigm by asking whether it is possible to change one part of a culture without changing other parts. Is it possible to eliminate blaming and shaming without also affecting structures of professional responsibility in important ways? Specifically, Bosk points to cases of self-inflicted blaming and shaming, which some healthcare professionals execute on themselves "to demonstrate to the community just how seriously they take their responsibilities to patients"(Bosk 2003: xxiv). Newer studies have raised similar questions (e.g., Collins et al. 2009; Wachter and Pronovost 2009). Thus, issues of self-blame, professional management of incompetence, and similar concerns raise a number of general questions as to what "the limits are to curbing the processes of 'naming, blaming and shaming' " (Bosk 2003: xxvi), as well as to "the costs involved in our current practices for installing a sense of professional responsibility" (Bosk 2003: xxvi). Bosk concludes with an invitation to think about "mismatches created by changes in the organization of medical practice" (Bosk 2003: xxvi).

This chapter has taken up this challenge by pointing to such possible mismatches, and by showing how important tensions come to the forefront when relating accounts of medical practice, safety cultures and responsibility structures comprised in previous studies of medical error and error management with contemporary modes of safety management. Firstly, it is found that the image of a dominant culture of 'naming, blaming and shaming', which unequivocally summons current narratives of medical practice, dissolves when looking closely at actual accounts of medical practice. Instead, a fragile ecology of co-collegial and informal error management is found consisting of processes of monitoring, sorting, and managing error, which might result in forgiveness, understanding, or in rare cases, the assignment of blame. In the optic of these studies, such mechanisms are anything

but problematic. Rather, they are described as necessary and important measures in dealing with both forgiveness, which is likely to generate a sense of responsibility in the person who is forgiven, and problems of moral and clinical incompetence, which is most often dealt with in gentle and informal ways. Conclusively, the main problem is not too many informal control mechanisms, but too few. Because, what follows from a shared understanding of the fallible nature of medical work and the shared vulnerability of the medical ethos is an environment where understanding and forgiveness is easy, sometimes too easy. And as such, the main challenge consists in, first, determining and setting apart different sorts of errors, mistakes, and acts of incompetence and, second, making sure professional structures are in place to manage these various kinds of failure in gentle, yet effective and decisive ways. As the vocabulary of the mistake and the problem of incompetence has disappeared from today's safety methodology and discourse, it is reasonable to think that conditions for sorting and managing various forms of error, mistake, and incompetence within the professional community have weakened. Here, the problem of incompetence is only one concern of many, which relates to changing the clinical situation by weakening or even dissolving the constitutive relationship between the medical error and the responsibility of the healthcare professional.

6. The Risk of Safety Management

A main message of the patient safety programme is that the most effective way of creating safety and preventing error in healthcare organizations is by the elimination of the factors that lead to error; it is by eliminating the risk of error. Inspired by human factors research, safety improvement efforts must strive to remove the risk of error – the latent failures – by creating systems that are as failsafe as possible, designed in ways that make it difficult or even impossible to make mistakes. The main assumptions behind the idea of risk-elimination and the faith in failsafe systems are equally asserted by the notion of preventability, often expressed in the idea of 'preventable' adverse events or medical errors[38]. In describing medical errors

[38] The concept of preventable adverse events is promoted in *To Err is Human* as the most correct way of speaking about harmful medical errors: "Errors that […] result in injury are sometimes called preventable adverse events" (Kohn et al. 2000: 4). In this way all medical errors, defined with reference to James Reason as either errors of execution or errors of planning, are determined as preventable. The idea that adverse events can be divided into preventable ones (caused by error – and most prominently human error) and non-preventable ones, caused by, for instance, known complications after surgery, has been dominant in patient safety studies since.

as preventable or, even more powerful, in describing the *deaths* caused by medical errors as preventable, a serious problem in need of management is instituted. As when, for instance, the often repeated *To Err is Human* estimate that 98.000 Americans die every year due to medical errors is reformulated as '98.000 preventable deaths' (Leape 2009). And it is most often implicitly assumed that the right procedure or, on a larger scale, patient safety management, could have eliminated the risk of error, so to speak, and prevented the death of the patient had the management tools just been optimally implemented.

In this chapter, I argue that rather than being eliminated, risks are likely to be redistributed. And I argue this on the basis of the recent efforts to eliminate the risk of error in healthcare organizations. By discussing some of the most important unintended organizational consequences which are likely to be the result of the patient safety programme's convergence with the clinical situation, I draw attention to the subtle and often invisible reconfigurations of professional work, attention, responsibilities and risks, which are the possible results of recent safety managerial efforts – also, or perhaps especially, when these managerial accomplishments are performing as planned. This, then, is not a tale of implementation problems or ineffective technological solutions. It is rather a question as to what *also* happens when safety management succeeds or, in others words, it is a discussion of how well-implemented safety solutions and safety rhetoric might have consequences, which are not only eliminating the risk of error and making healthcare safer, but equally creating new problems as well as altering some vital conditions for practicing medicine. Consequently, the problems and alterations caused by safety management have, ironically, the potential to *reduce* the quality and safety of treatment in certain ways. Accordingly, this chapter's overall argument is in line with the argument of the PO syringe-case, by which I introduced this dissertation; it instils the necessity of looking to the unintended organizational changes and problems created by safety

management initiatives, even when these are, at first sight, determined as managerial successes.

In parts of the more critically inclined literature on patient safety, the unintended effects of the programme have received some attention on a general level (e.g., Dodds & Kodate 2011; Jensen 2008; Waring 2007a; Zuiderent-Jerak & Berg 2010), however, only a few studies have focused on the problematic consequences per se. The studies that deal more specifically with such effects draw attention to, for instance, the logics inscribed in the policy documents rather than organizational practice (Lloyd-Bostock and Hutter 2008), or they address only parts of the programme, as for example the unintended effects of the blame-free strategies (e.g., Collins et al. 2009; Wachter & Pronovost 2009), its focus on errors and safety breaches (e.g., Mesman 2008, 2009, 2011), or of its specific technologies such as the root cause analysis (e.g., Iedema et al. 2006; Mengis & Nicolini 2011).

As such, this chapter should be read as an attempt to sort and suggest a tentative grouping of some of the most important unintended consequences of safety management efforts, or the risk of error management, on the clinical situation. I have chosen to divide these effects into four problem areas or risk categories[39]:

[39] By using the notion of risk categories to describe the different groupings of unintended effects, I have made myself susceptible to critique, as the term 'risk' has increasingly, and not only within areas of risk management, come to mean calculable risk. From this perspective, the notion of risk is used to determine when threats, dangers, vulnerabilities, or problems are constituted as measurable risk objects, most often through probability measures, while striving to account for and manage them. From this perspective, a vulnerable clinical situation becomes a risk when it is translated into a critical incident/adverse event to be reported and accounted for. When I have chosen the term risk, and not danger or problem or the like, it is not to indicate the possibility of assigning probability to the discussed unintended consequences. Rather, I define risk here simply as a situation which involves "the possibility of loss, injury, or other adverse or unwelcome circumstance" (Oxford English Dictionary). However, I do find the accountability claim often attributed to the risk label important, as I seek to indicate that when managing some risk via certain types of risk management tools, new areas of concern might arise that must equally be attended to and accounted for; they are the risk of risk management.

Classification risk addresses some of the important focus changes which are the result of critical incident classification; *second-order risk* refers to the tensions and trade-offs created by the institutionalisation of safety policy; *standardization risk* addresses the unintended effects of making standards and failsafe systems the obvious answer to safety issues; and lastly, *responsibility risk* points to the blurring of responsibility caused by the safety programme's blame-free rhetoric.

Importantly, it is not the goal of the present chapter to present a comprehensive or completed list of risks or unintended effects. Rather, the temporary and tentative character of such categories entails that the number, content, and bracketing of the categories could have been otherwise. This, however, immediately raises questions as to why I present exactly these four. In line with my pragmatic stance and based on my research, a pragmatic answer to this question is that after having tried out various combinations, these four risk areas were deemed most useful and effective in establishing a frame that allowed for the discussion and grouping of a number of important empirical and analytical observations of unintended consequence; or, in a Deweyan manner, they were the generalisations that deemed most valuable "as means of solution of the problem undergoing resolution" (Dewey 1938: 264).

The general arguments of this chapter are inspired by a number of studies dealing with the constitutive effects, unintended consequences, and distributed risks of rationalising, self-monitoring, and standardizing technologies in healthcare and elsewhere (e.g., Berg 1997; Bowker & Star 1999; Power 2007; Strathern 2000a, 2000b; Timmermans & Berg 2003; Vikkelsø 2005). In particular, the overall frame of this chapter is inspired by Charles Perrow's risk-redistribution argument developed in *Normal Accidents* (1984), where he essentially claims that risks are likely to be redistributed rather than eliminated by the introduction of safety technologies and risk management efforts, and he therefore warns against attempts at trying to

solve safety problems by introducing 'failsafe systems'. Perrow's argument is that when trying to reduce errors and accidents in complex and tightly-coupled organizations by introducing standards and safety devices with the hope of 'fixing' the problem, one is likely to increase complexity and tighten coupling between organizational components instead. And these are the two very characteristics, which, according to Perrow, make organizations prone to catastrophe. Given this critique, it is somewhat of a paradox that Perrow is seen as one of the main inspirations of the safety movement, which is essentially founded on ideals of failsafe systems that are free of human flaws. Perrow's argument teaches us three important lessons: First, we can never choose not to have problems or to eliminate risk; second, believing so and believing in quick fixes are likely to make things worse; and third, the effects of safety management are conditioned by the organizational context.

Although these different analytical insights have inspired this chapter's demarcation of risks, the main arguments are built on empirical observations. As such, the risk classification is, apart from being temporary, also situated, as it is essentially based on the safety programme's effects in a specific hospital centre and, on a larger scale, in a Danish healthcare setting. In this way, it can be argued that this chapter displays a practical and case-oriented attitude where management tools and their effects are evaluated with regard to the specificities of the case and from a perspective that is as inclusive as possible.

This chapter is divided into four sections, each dealing with one of the risk categories, after which more general considerations about the advantages of a case-based approach to risk and error management are discussed.

6.1 Classification risk: Critical incidents as new visibilities

Current patient safety efforts in healthcare are mainly organized around one particular management technology: the critical incident reporting system. With learning as the articulated goal of the programme, the strategy is to make errors and critical incidents visible and therefore manageable; by classifying certain vulnerable and clinical situations as well as medical errors as 'critical incidents' or 'adverse events' the goal is to learn from these and make sure that similar incidents are prevented in the future. As such, a new organizing tool in the appearance of new types of (countable) risk objects (Hilgartner 1992) is introduced into healthcare. Although they might appear objective or straightforward, classification processes in healthcare (Bowker & Star 1999), and more specifically decisions about what categories to include in risk management programmes, "are inherently moral and political and are riddled with difficulties" (Lloyd-Bostrock & Hutter 2008: 77). In this section, I address some of the main consequences of founding safety management efforts on incident reporting; namely, the problem of classification and its most obvious pitfalls.

It has been argued that the quantification processes, which are the necessary outcome of the introduction of classification systems, almost inevitably creates new kinds of accountability claims and new possibilities for surveillance and standardization, although such possibilities were not necessarily the reason for introducing the classification system in the first place (Bowker & Star 1999). Related to clinical incident reporting in a Danish healthcare context, such new accountability claims are, not least, expressed through an ambivalence of how reported incidents should be interpreted. When approached from a learning perspective, the number of reported incidents is an indication of culture, not the actual safety of patients. As such, a high number of reported incidents can be seen as a sign of an excellent

culture of reporting. However, looked upon with the lens of the accountability agenda, a high number of reports might be understood as a sign of many failures. Likewise, a drop in reported incidents can signal worsening (poorer safety culture) from a learning perspective or improvement (less failures) from an accountability perspective. Officially, the opinion of the safety programme and its promoters is clear: The number of reports is 'only' a sign of safety culture, not actual failures. However, in relation to the registration of incidents, this is a somewhat ambivalent position to hold. Most often the purpose of registering reported incidents in the National Danish Patient Safety Database is described as a question of collecting and analysing information; or it is said that the data are to point to focus areas for future safety efforts (Ministry of Interior and Health 2011). Such parallel, and at times opposing, demands are not only reflected at policy level but at the organizational level as well. At the university hospital where I conducted the main parts of my fieldwork, this ambivalence was shown in the fact that, on the one hand, a high number of reported incidents was a celebrated occasion; each year the clinic with the highest number of reported incidents was awarded with a small celebration by top management. At the same time, however, I sat in on a course where quality and patient safety representatives were taught how to draw out information and statistics from reported incidents. So in spite of the strong efforts, at least rhetorically, to argue that reporting is *not* about numbers and statistics, the reporting system as a technology with specific outcomes seems to perform reality in a certain 'measurable' way, which, in spite of everything, produces numbers and statistics. The accountability claims that are occasioned by the quantification of critical incidents are not least reflected in press and public opinion. Here, external communication efforts are indeed challenging, as it takes strong efforts to convince press and public that a high number of reported incidents are not to be interpreted as medical negligence but as an indication of safety culture. This tension between the

programme's accountability claims and its official 'learning' goal has been determined as two opposing logics (Doods & Kodate 2011). It has further been argued that, while the official message is otherwise, the widespread 'measure and manage' strategy of the programme is likely to benefit and foster calls for organizational accountability at the expense of clinical learning and coping (Waring 2009; Iedema 2007). The accountability logic has become the dominant one, so to speak, which might have problematic consequences, not least on how focus, attention, and work are reorganized.

Apart from the question of how the outcomes of incident reporting should be interpreted, the dilemmas of quantification and accountability are equally relevant in relation to the processes of initially classifying what should count as critical incidents (or 'adverse events'). In Denmark the official classificatory principles for determining a critical incident includes the following three rules: The incident must occur during or in relation to a treatment programme; the incident should be independent of the patient's illness; and the incident must be harmful or potentially harmful for the patient (Ministry of Interior and Health 2011). However, questions arise such as: When does treatment stop? Where is the dividing line between a critical incident and a known complication? And, what counts as harmful? These are all difficult questions to answer in concrete situations. Moreover, the vague delineations of what incidents to report make the definition potentially amorphous and almost all irregularities and incidents could fit the criteria. One possible result of vague and insufficient definitions and methods is that the identification of incidents is likely to be arbitrary and highly subjective (Foster *et al.* 2005). However, the argument put forth here concerns a slightly different problem: namely, that the type of incidents to be reported are to a very large extent predetermined by the rules and structures of classification, whereby serious safety critical situations that do not fit into these structures, risk falling outside the domain of safety management.

I was met with some of these dilemmas of classification already in the previously described pilot study of elderly care units (Jensen & Pedersen 2010). The Danish municipality had recently introduced critical incident reporting (a few years before it was made obligatory), and the result was that the large majority of reported events was related to the medication processes[40]. A nurse in a homecare team describes this phenomenon:

> "Medication errors are measurable; it's described whether a citizen is to have two or three tablets. In wound care we may fluctuate, here it's okay to choose between different types of medical preparations. It isn't the same, however, whether you choose to give two or three tablets."

In a similar way, a helper and a nurse-assistant explain:

> *Helper*: "I think it's the procedures connected to the medication process which helps us to maintain our attention to it." *Assistant*: "We have a number of procedures to follow, so there's nothing to discuss. We can't really choose." *Helper*: "It's more tangible. It doesn't add up here, so I'll call an assistant and she can tell me if it's an error or not."

As implied in these quotes, some areas – especially the strictly regulated medication area – make it easier for the personnel to decide if a situation is a deviance and, hence, can be defined as a critical incident; the more procedures, rules, and standards, the more potential breaches of these. This is not an unimportant point, as incidents related to medication by far constitute the largest incident category nationally. Apart from the medication area, other formalised areas such as

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[40] 70 pct. of this municipality's reported events in 2008 were related to the medication process (Jensen & Pedersen, 2010). This number is supported by the national average. In 2012, 69 pct. of almost 100.000 reported incidents in Danish municipalities were related to medication processes. If all healthcare settings are included, the medication incidents amounted to almost half of the incidents (National Agency for Patients' Rights and Complaints 2013).

administrative processes and documentation constitute categories of high frequency. As well as a few specific, pre-described and well-defined situations of which the category 'patient accident' (e.g., fall accidents) constitutes the largest group of reported incidents (National Agency for Patients' Rights and Complaints, 2013). On the basis of these observations, it can be argued that the new accountability claims imposed by incident reporting primarily apply to certain parts of healthcare work, namely, the measurable and formalised areas.

This leaves us with the important question as to those situations which "do not fit easily into our magical created world of standards and classifications: the left handers in the world of right-handed magic" (Bowker & Star 1999: 9). Because while the strictly regulated areas make it easy for the health personnel to decide if an incident is 'deviant' and hence can be defined as a critical incident, areas or situations that are not as easily addressable are likely to be discounted by the reporting system. As the nurse from homecare team already described in relation to wound care, infections might be one such area[41]. In the university hospital where I conducted the majority of my fieldwork, an interview with a patient safety coordinator at a paediatric ward illustrates the problematic:

> Interviewer: "Should infections be perceived as adverse events?" Nurse: "Well actually, they could be perceived as such, but we don't receive any reports on infections." Interviewer: "Why do you think it's so?" Nurse: "Well, it's difficult to address it to anyone or anywhere as it's extremely challenging to find out where an infection in a wound or in CVK [Central

[41] Although infections represent one of the thirteen WHO categories by which critical incidents are classified in the Danish system for incident reporting, they constituted in 2012 less than 1 pct. of the reported incidents (National Agency for Patients' Rights and Complaints, 2013). This number should be compared with studies that suggest infections to be one of the leading categories of harmful adverse events (Klevens 2007).

> Venous Catheter] comes from. Often CVK infections are brought on by the physician who inserts it, and not by the nurse who handles it. It's a difficult question. Whose fault is it?" Interviewer: "Does it have to be anyone's fault to be reported?" Nurse: "No of course not. But we still have to know, where we should address it. Of course, we can ensure that we maintain a good care of CVK and other wounds by washing them frequently. But infections still appear and whether it's due to hand hygiene or whether it is because the child is touching it, well it's hard to say."

As they are often not easily addressable, infections are also not easily solvable as safety problems. And, as the coordinator indicated, this poses a challenge to incident reporting procedures. In line with this observation, it has been argued that when work is invisible, or when it 'just gets done', it is by definition unclassifiable and hence not reportable (Bowker & Star 1999: 232). Such 'invisible' areas, where skills and practices are being back-grounded by not being formalised, articulated, or standardized, can be found in all parts of healthcare work, and it has been suggested that especially a large part of nursing and much of general care practices are of such a character (Bowker et al. 1995; Star and Strauss 1999).

In sum, the production of errors and critical incidents as new visibilities – and the parallel process of concealment, which is always the other side of the construction of transparency (Strathern 2000b) – point to some problematic consequences of error classification strategies. Classification procedures and accountability claims may, on the one hand, introduce new accountability claims which have the potential to dislocate original policy goals and, on the other, create 'blind spots' where important safety concerns are likely to be disregarded simply because they do not 'fit into' classification practices. Instead of deciding from situation to situation whether something should be further investigated, as well as whether it can potentially be

learned from in the specific context, the classificatory strategies are likely to cause incidents to be chosen from primary criteria of measurability and manageability. Additionally, this might create tensions and trade-offs between increased time, energy, and attention spent on the safety management of already highly formalised areas such as medication on the one hand, and more invisible parts of healthcare and safety work on the other, which leads on to the next risk-category concerning the production of second-order risk.

6.2 Second-order risk: Tensions and tradeoffs

In *Organized Uncertainty* (2007), Michael Power sets out to analyse the recent growth in risk management. Here, he describes certain side effects of the risk management regime regarding the production of a number of 'second-order' risks – which he also labels 'systems and control risks' (Power 2007: 62). Also Power's concept of reputational risks can be understood as a particular type of second-order risk (Power et al. 2009). The term second-order risk refers to the construction of new kinds of risks, which are not related to primary work tasks but to costs in terms of time, energy, focus, and so on, associated with keeping the risk management technologies and procedures running and in place. This chapter's second risk-category is inspired by this analytics, as it points to possible redistributions of focus from the concrete clinical situation, or from what could be determined as first-order safety issues, to second-order processes, such as the implementation and maintenance of the technologies themselves. Such redistributions show themselves as specific side-effects of the implementation of quality and safety technologies such as electronic patient records or medical information systems (Pirnejad & Bal 2011; Vikkelsø 2005), but they are equally likely to occur as a result of a gradual shift in meaning of, and discourse on, quality and safety caused by the introduction and institutionalisation of safety policy and technology.

During my fieldwork in the Danish university hospital, it soon became clear that patient safety had come to signal more than the safe treatment of patients. For the people working with patient safety, the term was rather used to describe processes and problems relating to the safety technologies themselves. A quote from the hospital's risk-manager illustrates this displacement:

> "I sense a very high general knowledge about patient safety and a common willingness to 'talk patient safety' at the hospital. You can get out at any clinic and everyone will know what the term 'patient safety' means and where to report an adverse event. But we do still have challenges. One concerns the implementation of action plans in relation to root cause analyses. The next great challenge is to create more confidence in relation to reporting critical incidents, so we reduce the number of anonymous reports, and lastly we have a major challenge in relation to securing feedback, which could definitely be done more satisfyingly."

According to this, 'patient safety' primarily refers to the policy programme and its technologies, and that is why success is measured in terms of how well the technologies are implemented: Is reporting done anonymously? Is the feedback satisfying? And so forth. Although the quote signals a relatively successful institutionalisation of the hospital's safety policies, the strong focus on second-order issues might create tensions in situations where first-order safety issues, securing safe treatment of the patient in concrete clinical situations, and second-order safety issues, doing work related to patient safety policy claims, are not in alignment. A case concerning an overstretched medical clinic at the hospital is illustrative: A similar clinic in one of the region's other hospitals was closed and both staff and patients were transferred to the university hospital. At a quality team meeting, a patient safety representative at the clinic described the situation as follows:

> "Our situation is very chaotic. There has been no time to properly introduce the new personnel. Normally all new staff receive a four-day introduction course but in this case they started without knowing the local conditions and without having, for example, a fire course. This situation is the reason we have not been doing any patient safety work lately. It isn't even in the back of our minds right now."

In this quote, the notion 'patient safety work' does not refer to the work done directly to secure the safety of the patients at the clinic. Neither does it refer to the missing introduction and fire courses, something one would readily identify as important safety concerns in the given situation. Instead, what the patient safety representative was referring to by 'patient safety work' was the work created by the safety technologies and procedures, that is, handling incident-reports, conducting root cause analyses, implementing new regional patient safety guidelines, and so forth. It was these work tasks that were not 'in the back of their minds' in the given situation. And rightly so, one might add. Hence, tensions and trade-offs were created between first- and second-order patient safety because, firstly, safety issues such as, for example, educating new staff was not defined as being part of 'safety work'; and, secondly, it is reasonable to think that spending time on second-order safety work could, in a critical situation like this, compromise the safety of patients. This second tension concerns a paradox of time that is ever present in relation to the running of safety technologies. The paradox can be exemplified by the fact that in situations of time pressure, where things are more likely to go wrong, the healthcare professionals are less likely to have time to do second-order safety work such as reporting incidents.

Second-order work is inevitable. Any new regulating effort related to the introduction of quality or safety programmes, or on an even more general note, every well-implemented management tool produces new second-order work tasks

and thereby redistributes focus, responsibilities, and attentiveness to risks and safety. However, such redistributions, inevitable or not, can become problematic when they inhibit the possibilities of reacting to the particular risks, safety concerns, or needs of the particular clinical situation because second-order work becomes primary.

6.3 Standardization risk: The risk of relying upon standards

The increase of standardization in healthcare, especially in terms of the demand for evidence-based medicine, has not gone unnoticed within medical sociology and science studies (e.g., Berg 1997; Timmermans & Berg 2003; Timmermans & Mauck 2005). In relation to the patient safety programme, the standardization quest dominates both methods and solutions, and although standardization is perhaps *the* dominant organizing principle of contemporary safety management, it is at the same time the most criticised part of the programme, as the 'one size fits all' attitude of the programme is said to undermine the complexity and situated status of risk, healthcare practices, and clinical work (e.g., Iedema 2009; Iedema et al. 2006; Waring 2009)[42].

With the third risk category, I address some of the risks connected to the safety programme's emphasis on formal rules, standardization, procedures, checklists, and safety-devices as the best solutions to safety issues. The emphasis on standardization is supported, as aforementioned, by the programme's failsafe systems approach to safety management stating that safety is best ensured by creating systems that make

[42] In chapter 8 I describe how the critique of standardization has resulted in recent calls for resilience within safety management, but equally how some of the assumptions of the standardization paradigm risk being reproduced in the quest to introduce resilience and adaptation as new organizing principles.

it as hard as possible for healthcare professionals to make mistakes (e.g., Kohn et al. 2000; Leape 1997). With frequent reference to James Reason's (1990) illustration of a Swiss cheese (see Chapter 2), it is argued that safety is about closing the safety gaps in a seemingly stable system by creating solutions that are as independent of the healthcare professional's individual memory and experience as possible. While there might well be obvious advantages of this approach in some instances, problems arise when standards and technological fixes become the *only* answer to safety problems.

To illustrate some possible dilemmas of the failsafe systems approach, I turn to the safety programme's primary method of investigating critical incidents, the root cause analysis (RCA). A RCA session can be understood as a rationalisation process that endeavours to present a comprehensible and linear chain of events, followed by the determination of a number of root causes, which is then followed by an action plan to avoid future incidents of a similar kind (Danish Society for Patient Safety 2005). Studies have shown how the formal descriptions of the RCA clashes with the situated reality of clinical work (e.g., Iedema et al. 2006). Nonetheless, standards and systems suggested by RCA action plans are often used in a non-problematic way in healthcare practices (Mengis & Nicolini 2011). As a quality coordinator at the Danish university hospital states: "It's all about finding out if the written standards are good enough but just haven't been implemented or whether you need to come up with a new guideline". In this way, standards are the object as well as the outcome of the analysis from the outset; however, as I seek to indicate with the following case, standards are not necessarily providing the only or best answers to the questions posed by the incident.

Let us consider an RCA concerning a child who was transferred from a regional hospital to the Danish university hospital. At the regional hospital, the child begun

treatment for what turned out to be a mistaken diagnosis, and after the transfer, the child remained on the mistaken clinical pathway for three months until a brain tumour was detected. Although the tumour had been present at all previous scans, it was only detected by chance. In the process of looking for root causes to describe how the personnel at the university hospital could have overlooked the tumour during the transfer and throughout the three-month period of mistreatment, the focus in the RCA sessions was primarily directed towards 'what went wrong' during the hand-over between hospitals. Concerning this particular situation, it is quickly agreed that the main cause of the incident was the fact that the university hospital's radiologists did not get an opportunity to see and therefore comment on the child's scan images from the regional hospital. Consequently, a new standard was agreed upon during RCA stating that whenever a child is transferred from another hospital, the university hospital's radiologists should conduct their own investigation of the scan images. The new standard is just by the book; the RCA poses the question: What procedures, rules, or safety systems (which are readily implementable) can prevent future incidents of a similar kind? However, without being able to determine the effects of the new procedure, it seems plausible that things might not be quite as simple as that. Especially if remembering the characterisation of medical knowledge as inherently uncertain and situated, as well as Perrow's (1984) warning that we cannot always expect incidents to be prevented in the future because of the adoption of standards – not least because complex organizations interact and interrelate in ways which are not entirely predictable. From this perspective of taking unpredictability and uncertainty into consideration, it can be argued that the main question posed should perhaps not have been, 'How are we to make sure that this is never going to happen again', but rather, 'How can we deal with the fact that wrong diagnoses are sometimes suggested?' and given this, 'How can we create an organizational environment which invites us to reflect upon diagnoses and

symptoms even after treatment has started?' Such questions would recognize medical reasoning as essentially situated, uncertain, and timely; features that, at first sight at least, do not easily fit into the scheme of standardization.

Recent debates about the politics of standardization in healthcare have abandoned the question of being pro or con standards. Instead, standards are studied as vibrant, ambiguous, and political entities with diverse outcomes of both intended and unintended character (e.g., Berg 1997; Bowker & Star 1999; Timmermans & Berg 2003). Additionally, it has been stressed that critics of the standardization paradigm have underestimated the benefits of formalisms and standards as means of advancing healthcare practices (Timmermans & Almeling 2009). Such perspectives have initiated attempts to address standardization in a less dogmatic, more context-specific way, for instance, through the concept of 'situated standardization' (Zuiderent-Jerak, forthcoming). The articulation of standardization as a risk-category is not, however, a critique of standardization *per se*, but rather a problematisation of the dominant failsafe systems logic of the programme, as well as the inbuilt conviction in recent safety management and technology that more standards and safety devices will *necessarily* lead to more safety.

6.4 Responsibility risk: Non-blame and blurring of responsibility

Another guiding rationality of the safety programme, which runs parallel to its standardization claims, is its blame-free rhetoric, which is supposed to shift focus from individual responsibility and blame to systems failures. "The problem is not bad people; the problem is that the system needs to be made safer" (Kohn et al. 2000: 49) was one of the main conclusions of Institute of Medicine's report *To Err is Human*. This blame-free ethos is designed to help realize the goal of creating healthcare environments where professionals can talk openly about failures with the

result that they can be corrected. It is also, as implied earlier, from this perspective that the notion of 'adverse events' is deployed as a 'systemic' term for failures, as well as the frequent positioning of healthcare workers as 'second victims' of incidents. In short, the blame-free perspective constructs safety as a system property (Zuiderent-Jerak & Berg 2010). In Denmark, the systemic perspective has been institutionalised as a legalised assurance that healthcare workers can report incidents without risking penalties[43]. As such, the blame-free paradigm has functioned as a precondition for the success of incident reporting. However, the blame-free approach creates a number of unresolved tensions, as it can be argued that the present safety programme's strong emphasis on risks and errors (in contrast to, for instance, chance, complications, accidents, etc.) inevitably raises issues of blame and responsibility (McDonald et al. 2005). In line with questions of addressability and accountability raised earlier in relation to critical incident reporting, it can even be argued that the transformation of clinical situations into reportable incidents – that is, the creation of new risk objects to be managed – is essentially about making actors and organizations responsible (Hilgartner 1992; Douglas 1992; Power et al. 2009). When taking into account such links between responsibility, accountability, and risk and error management, it might become necessary to, to quote Llyod-Bostock and Hutter, pose "fundamental questions about how blame-free these systems really can be, as they may of themselves generate new sources and arguments about blame" (2008: 79).

To give an illustration of the inherent tensions of the programme, let us again turn shortly to my fieldwork at the Danish university hospital, where I frequently experienced that assurances of a blame-free environment were most eagerly given when discussions were essentially about blame and responsibility. One root cause

[43] The Patient Safety Act: §201 in Law on Health, Act No 288 of 15/04/2009.

analysis, for instance, concerned an acutely-ill patient who was admitted to a non-intensive care unit ward. The nurses at the ward were trying to warn the leading physician that the patient was extremely ill and needed intensive care. The physician, however, did not take action, and the patient had a cardiac arrest but was resuscitated. A number of reasons could explain why the physician did not take action. Because of staffing shortages, it was an extraordinarily busy day and the physician in question was therefore made responsible for an extra ward of patients. Additionally, the physician was made to believe, because of previous scans, that the patient's symptoms were due to a less serious condition than what was actually the case. These and other 'systemic' reasons were thoroughly discussed during the RCA, under constant reminder that the process was 'blame-free'. The atmosphere in the room during these discussions, however, simultaneously suggested that the process was maybe not so free of blame. On one side the leading physician was trying hard to explain away his responsibility for the situation and, at the same time, indirectly, to blame nurses and other colleagues. The nurses, on the other side, were clearly frustrated about a setting where they were indirectly blamed, while the blame-free headline made it impossible for them to state the obvious; namely that, all valid reasons aside, the leading physician was officially responsible for the treatment of the patient, and, more importantly perhaps, a human error in the shape of a bad judgment was to be added to the list of 'systemic' reasons; namely, that the physician did not act on the nurses' warnings about the patient's condition. Although it would take more than these few paragraphs to do the case justice[44], this short account does indicate how the blame-free rhetoric might complicate matters

[44] I return to this particular root cause analysis and the clinical situation it investigates in the following chapter. Here, however, it is invoked to address the unsaid and intuitive unsettledness felt by several of the implicated personnel, rather than the actual warnings, which the nurses, somewhat into the process, uttered to the leading physician.

unnecessarily and diffuse responsibility in ways that affect possibilities of seeking both accountability and resilience. Because although it might have processual value to pre-determine safety issues as free of blame before going into the process of analysing them, it is not always productive for the outcome.

This observation is backed by a recent study of root cause analysis processes, where it is concluded that "[b]y officially banning blame and imposing a politically correct way of reflecting on incidents, blaming has been pushed underground, thereby making it less visible and more difficult to manage" (Mengis & Nicolini 2011: 183-184). In addition, it has been discussed whether "a focus on individual doctors and a certain amount of blame and sanctioning" (Llyod-Bostock & Hutter 2008: 79) is not so central to discussions about safety that it must necessarily be included in safety regulation efforts. Most importantly, however, it seems obvious from the RCA, referred to above, that blame cannot be excluded from these processes *before* the specificities of the case are known and analysed in detail.

A further element of the discussion concerns the concept of self-blame. Here, it has been argued that the goal of not addressing human error might disrupt processes of self-blame and taking responsibility for failures; processes which may stimulate learning and improvement and which have functioned as important self-regulating practices in healthcare for ages (Collins et al. 2009). In this way, it seems that radically changing or eradicating processes of both blame and self-blame can result in fundamental changes in the conditions and roles that have framed the work of healthcare professionals over time.

6.5 Situated reasoning versus a principle-driven programme

In *Rationalizing Medical Work* (1997), Marc Berg argues that 'rationalizing technologies' in healthcare cause a disciplining of medical practices to fit the specific

formalisms of the technologies, with a transformation of medical work as a consequence: "The intriguing feature of these systems is that they alter the work that allows them to exist" (Berg 1997: 170). Introducing a safety technology or procedure is not just a neutral process of adoption but also an active transformation of the practices it meets. This transformation is, to some extent, the intention of the safety programme: namely, to increase patient safety and create a learning culture in healthcare. However, as this chapter has testified, the safety programme simultaneously redistributes risk and responsibility in ways that are not always intended. While the technologies might indeed solve some problems, these transformations might also, to return to Charles Perrow's argument about normal accidents, create new context specific problems and pose new risks. It is therefore perhaps trivial, but with the prevailing myth of risk-elimination nonetheless important, to stress that one can never choose to become problem- or risk-free.

This chapter has also strived to demonstrate the perhaps less trivial point that the specific character of the patient safety programme and the particular rationalities it imposes on healthcare practices introduce a number of risks, which are closely connected to the highly principle-based nature of the current paradigm, as well as its strong standardization claims. In relation to this, however, it should be noticed that the four categories are of a slightly different kind. The first two of the four categories, classification and second-order risk, are both of a somewhat more generic type; they address some of the effects, not least in terms of gradual changes of focus and attention, which possibly, perhaps even inevitably, follows from introducing any new classification system or management programme into practice. The last two categories, standardization and responsibility risk, relate more specifically to some of the dominant organizing principles of the safety programme and its advocacy; namely, the assumption that standardization and fail-safe systems should be promoted as the best way of organizing, and the assumption that safety

can only be obtained with a non-blame-attitude to error. Hence, these categories are more specifically addressing what could be determined as the self-inflicted plagues of the programme; that is, the problems that are grounded in the particular management ideals of the patient safety policy agenda.

On the basis of all four categories, however, it can be argued that the programme's specific set of ideals of, and methods for, organizing are a strong contributing factor in creating a particular kind of risk; the risk of instituting golden principles for organizing (Du Gay & Vikkelsø 2013). Accordingly, the first category, *classification risk*, suggests that in recent error classification efforts, it is not necessarily the importance, seriousness, or learning potential of specific patient safety concerns that decide their fitness to be reported as critical incidents. Rather, principles of accountability and measurability are likely to highlight and give privileged attention to certain types of highly formalised healthcare practices at the expense of more invisible and tacit healthcare practices and situations. The second category, *second-order risk*, indicates how the institutionalisation of the safety programme results in the construction of second-order safety work, which might lead to situations where important first-order safety concerns are neglected or dealt with insufficiently because second-order work is, by principle, prioritized. The third category, *standardization risk*, suggests that questions and solutions to safety issues are not always sought after in the specificities of the situation under inquiry. Rather, safety management efforts, to a large extent, predetermine the principle of standardization as the best answer to all safety issues, with the result that the suggested solutions potentially undermine, for instance, the situational and timely character of medical work. Finally, the category of *responsibility risk* questions the blame-free principle of the safety regime, which, when pursued dogmatically and *a priori*, might disturb traditional and situated ways of taking responsibility for and acting upon failure. In this way, the four identified groups of problems or risks have one essential thing in

common: The rather dogmatic and principle-based character of much safety policy overshadows the possibilities of approaching safety from a more situated and context-specific perspective, where the particularities of the clinical situation determine the questions to be asked and the solutions to be suggested. I shall return to the question of *a priori* organizing principles, as well as to the further development of an alternative situation-based approach to safety management, in Chapter 8 of this dissertation. But first, a closer look at the learning ambitions of the programme.

7. Learning in Safety Critical Situations: Reconsidering the 'Human Condition'

One of the main buzzwords of patient safety policy is 'learning', and in the inception as well as the continuing spread of the patient safety regime, the concept of learning is playing a vital role. First and foremost, learning is used as a precondition for, a legitimation of, and a motivational factor in relation to, the introduction of technologies to report and analyse critical incidents. With the aforementioned motto of going from a culture of blame and shame to a 'learning culture', the programme introduces a systems perspective to assure openness and willingness to talk about errors, whereby errors are made into a system property and learning into systems learning. This 'learning approach' is understood as the opposite of a disciplinary approach to safety, where errors are traced back to individuals who are then blamed and sanctioned. In opposition to this, systemic rhetoric is used to encourage healthcare professionals to talk openly about, report, and analyse incidents so as to promote the system's ability to prevent incidents. One of the main assumptions, which the systems approach to learning is founded upon,

is that human cognition is essentially flawed and unmanageable. This so-called unchangeable human condition is communicated, for instance, through various 'psychological gimmicks' as illustrated in Chapter 2. By describing humans as error-prone and unchangeable, it becomes pointless to focus upon the individual healthcare worker. Instead the system is now to be understood as the learning object.

This focus on systems thinking, which is so characteristic for the safety programme's understanding of learning, is not unknown to learning theories, and especially literature on 'the learning organization' stresses how learning can be strengthened by thinking about the organization as a system (e.g., Senge 1990; Senge 1999). Peter Senge states:

> "People start seeing and dealing with interdependencies and deeper causes of problems only as they develop the skills of systems thinking. In my experience, if basic learning capabilities like these are deficient, then they represent a fundamental limit to sustaining change." (Senge 1999: 9)

By means of this, systems thinking becomes the famous 'fifth discipline' (Senge 1990), which is promoted as the most important method to transform organizations into learning organizations. A number of differences between the patient safety programme's systems approach and Senge and his colleagues' systems thinking can be found. Of these, the most important is perhaps that, while mainstream patient safety literature is likely to treat the organization as a rather stable entity where safety is essentially about fixing safety gaps, Senge and his colleagues understand the learning organization, or the system, as a dynamic and ever-changing entity. Differences apart, the idea of the unchangeable human condition is a shared key assumption of both approaches. Built on a human factors approach, it is argued that "the source of poor performance and organizational failure is often to be found in

the limited cognitive skills and capabilities of individuals compared to the complexity of the systems they are called upon to manage" (Senge & Sterman 1992: 139). Commencing with such human shortcomings, it is also a shared principle that education and training directed at improving individual skills and increasing experience levels are 'weak' solutions to safety problems: "Experience and training do not solve the problem" (Senge & Sterman 1992: 139). It can, furthermore, be claimed for both mainstream patient safety literature and literature on the learning organization that when individual learning *is* addressed, it is often treated in rather unspecific and unproblematic terms. In this way, what Bente Elkjaer claims for theories on the learning organization goes for both positions; namely, that "the relation between individual learning and organizational problem solving is regarded as unproblematic, construed simply as a matter of the former meeting the demands of the latter" (Elkjaer 2001: 439).

In the pages that follow, I suggest that a systems perspective on learning, and the assumptions of human flaws and shortcomings upon which it is built, has a number of practical shortcomings in relation to the clinical situation. Such shortcomings are related to its abstract and principle-based formulation; its reactive approach by which learning is understood as the process where systemic improvements are created after the fact; and its neglect of clinical experience and more inward, tacit, and bodily elements of learning and knowledge processes. Therefore, I contrast the understanding of learning expressed by the policy programme with the approach formulated by John Dewey. Dewey is commonly known for his notion 'learning by doing' (or more correctly 'learning from experience'), and he is scholarly recognized within learning research for promoting learning as the ability to reflect upon and inquire into problematic situations. Most commonly, the Dewey reception within learning research is focused on concepts such as inquiry and reflective thinking (e.g., Elkjaer 2001, 2004). Although these concepts are indeed important for the Deweyan

perspective on learning, this chapter highlights Dewey's concepts of habit and intuitions, as such concepts are able to shed light on the more tacit but indispensable parts of learning and knowing, which in important ways constitute the backbone of safe practices in organizational life. By stressing the habitual and corporal element of Dewey's learning theory, this chapter is not only a comment to the patient safety programme's understanding of learning or to systemic learning theories in general but equally to those practice-based or Dewey inspired approaches that pay less attention to the more tacit and inward modes of organizational life.

In the next section of this chapter, I present an account of how learning is mirrored in patient safety literature and policy. This account is followed by a presentation and discussion of a clinical situation concerning a critical incident occurring in the Danish hospital where I conducted the fieldwork for this dissertation. Taking point of departure in the case, it is possible to contrast a systemic understanding of learning aiming at system improvements with a concept of learning and knowing looking to the intuitions, habits, and experiences of the healthcare professionals in the concrete clinical situation. This last approach to the case is unfolded and conceptualized with the help of Dewey in the subsequent part of this chapter. To conclude, implications for patient safety policy, learning theories, and safety management in the particular situation are discussed.

7.1 A systems perspective on learning

> "Imagine a jet aircraft which contains an orange coloured wire essential for its safe functioning. An airline engineer in one part of the world doing a pre-flight inspection spots that the wire is frayed in a way that suggests a critical fault rather than routine wear and tear. What would happen

> next? I think we know the answer. It is likely that – probably within days – most similar jet engines in the world would be inspected and the orange wire, if faulty, would be renewed. When will health-care pass the orange-wire test?" (WHO 2005: 3)

As the quote from the WHO World Alliance for Patient Safety suggests, the goal of the international patient safety movement is illustratively to make healthcare pass 'the orange-wire test', that is, as explained in the same document, to let "the bad experience suffered by a patient in one part of the world to be a source of transmitted learning that benefits future patients in many countries" (WHO 2005: 3). This 'transmitted learning' is primarily to be obtained via the introduction of safety technologies such as critical incident reporting systems and root cause analysis, which are both technologies borrowed from high-risk industries, primarily aviation. The possibility of creating a healthcare system that can 'pass the orange-wire test' points then to ideals of standardization, centralization, and system-improvement. The term 'transmitted' suggests that learning is viewed as something that is easily transmittable across contexts independently of the particular situation.

To illustrate the current emphasis upon a particular approach to learning in safety policy, I turn for a moment to one of the more important documents in the inception of the programme. In 2000 Department of Health in the UK published the document "An Organization with a Memory: Report of an Expert Group on Learning from Adverse Events in the NHS" (2000). In terms of citations and effects, the document stands as the European pendant to the American Institute of Medicine's *To Err is Human* (Kohn et al. 2000), which is, as noted earlier, said to sow the seeds for the international safety movement. As the title of the NHS document suggests, the concept of learning is central to the text and in the 108-page document, learning (learn*) is mentioned nearly three hundred times. In the introduction, the expert group explicates its purpose solely in relation to learning:

> "Too often in the past we have witnessed tragedies which could have been avoided had the lessons of past experience been properly learned. The task of the Expert Group was to advise the Government on the steps that can be taken to ensure that the NHS learns from its experiences, so that the risk of avoidable harm to patients is minimised." (2000: vii)

In this way, learning, and specifically 'learning from experience', plays a dominant rhetorical role in the document as *the* primary mechanism with the ability to make healthcare safer. In the same vein, 'failure to learn' is understood as the main cause for lack of safety. Consequently, "failure to learn reliably from adverse events" is coupled to a wide range of alarming numbers such as an estimated 850,000 adverse events in NHS hospitals a year, of which half are understood to be avoidable and therefore subject to the 'failure to learn' argument (Department of Health 2000: 5). Within an overall logic of risk-elimination, as described in Chapter 6, this suggests that anything understood as avoidable is also understood as preventable by means of safety technologies and policies. The group concludes with a number of suggestions of how healthcare can "modernise its approach to learning from failure" (Department of Health 2000: xi); namely, "unified mechanisms for reporting and analysis when things go wrong; a more open culture, in which errors or service failures can be reported and discussed; mechanisms for ensuring that, where lessons are identified, the necessary changes are put into practice; a much wider appreciation of the value of the system approach in preventing, analysing and learning from errors" (Department of Health 2000: xi). These priorities can still be understood as the main bricks of the safety programme: Reporting and analysis of incidents, promotion of a blame-free learning culture, and the introduction of the systems perspective in safety management.

It is interesting to notice how the phrase to 'learn from experience' is evoked as a way to express the system's ability to, within a risk-elimination logic, 'learn' from errors by introducing standardized and centralised system improvements. From this perspective, experience does not seem to be related to the individual clinician's habits, skills or knowledge. Within the systems perspective, humans are, on the contrary, understood to be the weakest link as it is believed that humans are essentially more 'error-provoking' and less easy to manage than systems. Consequently, system improvements must be made to ensure that humans make as few errors as possible. Inspired by human factors research and safety engineering in other industries, the programme is thus based on:

> "the assumption that while we cannot change the human condition we can change the conditions under which people work so as to make them less error-provoking. When an adverse event occurs, the important issue is not who made the error but how and why did the defences fail and what factors helped to create the conditions in which the errors occurred." (Department of health 2000: 21)[45]

As described before, this idea about an unchangeable human condition pervades the ideology of the programme and as a result individual learning and training are deemed largely ineffective. The argument that systems are essentially more manageable than humans is reflected in quotations such as: "The local human errors are the last and probably the least manageable part of the causal sequence leading up to some adverse events" (Department of Health 2000: 21), and:

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[45] This argument is imported from human factors research, and especially cognitive psychologist James Reason, who is often quoted within safety research for his argument that "we cannot change the human condition but we can change the conditions humans work in" (Reason 2000: 768).

> "The same set of circumstances can provoke similar mistakes, regardless of the people involved. Any attempt at risk management that focuses primarily upon the supposed mental processes underlying error (forgetfulness, inattention, carelessness, negligence, and the like) and does not seek out and remove these situational 'error traps' is sure to fail." (Department of Health 2000: 21)

As such, the healthcare workers 'mental processes' might trigger the error, but as they are assumed unmanageable and as part of the unchangeable human condition, one must seek to reorganize the system in such a way that human errors become as unlikely as possible. In line with this argument, the focus on the system instead of the human as the primary 'safety guard' establishes possibilities for creating high levels of standardization and for importing solutions across departments, hospitals, and even industries, with the goal of making sure that "[i]ncidents where services have failed in one part of the country are not repeated elsewhere" (Department of Health 2000: 4) – an argument similar to the orange wire argument quote above.

A number of points can be made about this understanding of learning. First, being used as an abstract systemic quality, learning becomes a rather underspecified concept in the programme's overall rhetoric. As a positive rhetorical figure, the concept serves to legitimize the programme's intentions; it becomes a self-evident counterpart to the concept of 'blame'. As discussed in Chapter 5, the myth of a medical culture of 'blaming, shaming and naming' is used to legitimize a new systemic and blame-free perspective on safety improvement and organizational learning. Instead of blaming, which prevents an open discussion of error in healthcare, we now need to learn from failures, we need a 'learning culture'.

Looking more specifically to what is, nonetheless, contained in the concept when analysed through the lens of the general discourse on system safety, it seems that the

primary 'learning model' is to 'fix the system' by introducing standards, procedures, and safety devices. As such, a learning culture, in this perspective, does not primarily attempt to make individuals or groups in the organization learn and get wiser. It is rather understood as a culture where individuals report and analyse incidents to make the *system* wiser. As a result, the safety programme's understanding of learning largely removes the importance, or even the possibility as such, of approaching 'the learner' and his/her habits, experiences, skills, and so on, and speaks almost solely about the system's ability to learn. The interesting consequence of the programme's logic is that it is initially only the humans, not the systems, which are understood as inherently fallible, and that is why the goal largely is to create systems that are as independent of experience, memory, and individual habits as possible.

An important question, which the patient safety literature is remarkably silent about, is the relationship between systems learning and the individual healthcare professional. What does learning become for the individual (or the group) in a perspective where everything is about the system's ability to learn and adapt? Well, for one, individual learning becomes a matter of learning to follow guidelines and adhere to new standards in order to reduce the system's dependence upon 'the human condition' and its basic variability. Moreover, individual learning becomes a matter of learning how to think, talk, and act in accordance with the systems perspective. Hence, healthcare workers are taught how to identify, report, and analyse critical incidents, as well as how to talk in specific systemic and blame-free terms about errors (now spoken of as adverse events or critical incidents). As indicated, this idea about the importance of advancing individuals' ability to think of the organization as an abstract system is also known from theories on the learning organization (e.g., Senge 1990; Senge 1999; Senge & Sterman 1992).

A central 'learning tool' within the systems perspective is the root cause analysis. As described earlier, the overall goal of the RCA is to analyse a safety critical situation in order to identify a number of system improvements, which might prevent similar events from occurring in the future[46]. Taking point of departure in a particular RCA I will discuss the scope and limits of the above presented approach to learning of present safety management.

7.2 A misdiagnosed extra-uterine pregnancy

Imagine the following situation: A pregnant woman in great pain is hospitalized. When she is admitted, a scan is conducted and the foetus is established to be lifeless. Furthermore, the woman is estimated to be eighteen weeks pregnant and diagnosed as experiencing a placental abruption (and hence to be aborting), which is interpreted as the reason for her pain. Henceforth, the patient is given medication to speed up the abortion, but during the next few hours, her condition is worsening and the abortion is not taking place. It is only much later in the process, and when she experiences cardiac arrest, that it is realised that she is experiencing a ruptured (and therefore internally bleeding) extra-uterine pregnancy.

During the subsequent root cause analysis process, the main question to be answered by the analysis is why the wrong diagnosis is withheld. A number of causes are explicated during the process, most importantly perhaps that significant pieces of information available at the time pointed in the direction of the given diagnosis. A physician states that: "The reason it goes wrong is that you think that things are as they seem, however, they are not." A number of preceding events can explain why the physicians are left to believe that 'things are as they seem', that is to

[46] I will discuss the methods and solutions of the RCA in greater length in Chapter 8.

say that the pregnancy is intra-uterine. In particular, what is thought to be no less than three previous scans had not led them to believe that the pregnancy was anything but intra-uterine: First, a conversation with the foreign-speaking husband gives the impression that the woman had a scan in week fourteen and everything looked normal. This information is later doubted. Second, before her hospitalization, the woman received a week-twenty anomaly scan, however, the pregnancy is at this point estimated to be earlier than twenty weeks, and so the scan is not completed. Although the scan is interrupted, the couple is led to believe that the pregnancy is normal. Thirdly, as described, a scan is conducted when the woman is hospitalized, but as the woman is in a lot of pain, the scan is quick and chaotic and hence inadequate to establish the extra-uterine pregnancy. Had just one of these scans been completed, an extra-uterine pregnancy would have been established. Other reasons for withholding the misdiagnosis are pointed out during the meetings: For instance, the involved physicians are stating that it is extremely rare that an extra-uterine pregnancy can continue for so long without any symptoms: "It is rarely in our heads that this is a possibility" one of the implicated practitioners explains. Moreover, the given diagnosis, placental abruption, can potentially be very painful and that is why the woman's symptoms at first sight did not contradict the initial diagnosis. So on paper (at least as far as the personnel were concerned at the time), a long list of reasons was assuring them that things were the way they seemed to be.

Sitting in on the RCA meetings and experiencing the almost constant and intense tension in the room, it was soon clear to me that other issues were at stake. Before long, it became clear that, although everything looked fine on paper, a number of the involved personnels' felt or suspected that something was not 'as it seemed'. An attending physician explains:

> "At some point in the morning somebody had a suspicion [that it could be an extra-uterine pregnancy], however, it became misleading that a fresh scan from ultrasound was available. The suspicion was not big enough for us to get a second opinion."

The same physician, who is working the morning shift, was obviously worried about the state of the woman. During the RCA sessions, he struggles to find the right terms to describe this unease, but when directly confronted with a nurse's suggestion that she had 'a feeling' that he was worried about the patient's condition, although he didn't directly tell her so, he describes the case as follows: "It was one of those cases where you experience a certain unease. I had a feeling that she was unstable. It is something non-verbal. I went around looking worried with wrinkles in my forehead". Apart from the attending physician, the nurses working closest to the patient were perhaps the ones being most uncomfortable with the situation. The nurse, who was in charge of the patient, explains: "It is not my responsibility to diagnose the patient, but something did not add up. It did not fit my intuition at all. At times, she was totally gone, at others she was screaming from pain". Accordingly, she tried to indicate to the attending physician (working the night shift) that something was wrong. This physician did not, however, react to this, as he was, with his own words, "slightly unsure about her unstable condition but nor unsure about her diagnosis". The problem here, it seemed, was both about hierarchy and about the nature of the knowledge the nurse tried to communicate. This peculiar position of nurses as those who work closest to the patients, and who are therefore often in the best position to sense potential problems, irregularities, or vulnerable

situations have been discussed in studies on intuitive kinds of knowledge in nursing (see for instance Benner & Tanner 1987; Rew & Barron 1987)[47].

From the perspective of the patient safety programme, this case is a classic example of how failure originates from a number of safety gaps, which need to be closed. Departing from Reason's illustration of the system as a Swiss cheese, it is argued that: "Serious danger arises when a set of holes lines up to allow a brief window of accident opportunity" (Department of Health 2000: 4). Or as the risk manager in the concrete process announces, also with reference to Reason's image, "all the holes in the cheese slide align while blinking bright red, so what we need to do now is to close those holes". In this way, the root cause analysis is understood as a way to introduce system improvements, which ideally will prevent similar incidents in the future. When the circle is completed, it is assumed that the system has *learned* from the incident. In the present case, the established root cause of the accident, the retention of the wrong diagnosis, was to be managed by the introduction of three concrete action plans: First, the introduction of a new standard for scans; second, a new procedure for handing over information about patients during the change over between shifts; and third, a 'timeout' in relation to the handling of acutely-ill patients. In line with the principles of the programme, this identification of standardization-based solutions is how 'learning from experience', to refer back to *An organization with a memory* (Department of Health 2000), is enacted.

For the rest of this chapter, I will partly add to and partly challenge this particular systemic understanding of learning. While the proposed solutions may have a positive effect in specific cases, there is more to say about the clinical situation

[47] In Chapter 6, I discussed this particular case under the heading of *responsibility risk*. When it comes to appointing responsibility, the question of position is of particular importance, but as described, the 'blame-free' rhetoric of the safety programme might in the case of the RCA obscure such processes.

under investigation; there are other important ways of addressing the problem of learning[48].

7.3 To know with the muscles: Dewey's approach to learning

> "A certain delicate combination of habit and impulse is requisite for observation, memory and judgment. Knowledge which is not projected against the black unknown lives in the muscles, not in consciousness. We may, indeed, be said to *know how* by means of our habits." (Dewey 1922: 177)

John Dewey's work springs from an overriding interest in learning, education, and questions of how we can guide our actions from inquiring into our experiences and refining our habits accordingly. The close connection Dewey draws between

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[48] As one might expect, these descriptions are hardly doing the case justice in terms of the various details which led the incident to happen and the list of questions it poses, including issues of workload and resources, communication problems, logistics, hierarchy, responsibility, etc. Only a few of these problems are dealt with at the RCA process. Research suggests that RCA processes tend to end the analysis at problems for which known and easy solutions are available (Rasmussen 1999). The complex set-up of circumstances is, however, the reality of the everyday practice of medicine, and in this specific situation, a very large number of different circumstances interplayed in very unfortunate ways. In such an environment, the notion of creating safety via 'closing holes' becomes quite challenging. As does the idea about preventing similar incidents by standardization, as suggested by Charles Perrow, because the likelihood that a similar incident, in this case an incident including no less than three failed scans, a foreign-speaking husband, a lack of physicians on that particular day, and so on and so forth, is quite close to none. Within safety research, the idea about 'resilience' has been put forth as an alternative to the prevention paradigm (Weick & Sutcliffe 2001). In important ways, the concept of resilience is a way to move beyond the idea about stable systems that can become safer from standardized solutions only. However, within parts of the literature on resilience, there is a tendency to fall into the other extreme by emphasizing concepts such as improvisation and creativity as solutions to safety problems at the expense of, on the one hand, carefully developed habits, rules, skills etc., and on the other, reflective and structured inquiry into the problem at hand. As it will become evident in what follows, a Deweyan perspective on learning highlights exactly the importance of slowly developed habits based on past experience for the possibility of inquiring into problematic situations. In Chapter 8, I discuss the controversy between a standardization approach and a resilience approach to safety management in greater length.

learning and experience is popularly known as 'learning by doing', although Dewey's own term is "learning from experience" (Dewey 1916: 140). Essentially, Dewey states that learning and education are matters of examining and reflecting upon experience and its value in problematic situations, i.e., uncertain situations which require us to reflect, think, and find a solution to the specific problem that confronts us. The patterns of such thinking and inquiring are built on previous experience in solving similar problems and as such, experience and inquiry into experience enables us to act in a more informed way. From this follows, on the one hand, that a learning environment is a reflective environment, which encourages thinking, inquiring, and reflectivity. The importance of reflection for learning in Dewey's writings is well known, has been studied thoroughly and has inspired organizational learning theories (Boud et al. 1985; Elkjaer 2001; Jordan 2010; Schön 1982, 1987).

On the other hand, and what is less recognized within the common Dewey reception, learning is also intrinsically connected to and dependent on habit, intuition, and feeling, which explains why one of Dewey's most significant works, *Human Nature and Conduct* (1922), is dedicated to exactly these dispositions. Dewey goes as far as to establish that "man is a creature of habits" (Dewey 1922: 18). To illustrate the importance of habit for learning, Dewey asks what it requires for a man to stand straight, and he argues against the belief that "if one is told what to do, if the right *end* is pointed to them, all that is required in order to bring about the right act is will or wish on the part of the one who is to act" (Dewey 1922: 27). Rather, standing straight is about the formation of the habit of standing straight, it is about learning to stand straight, not wishing to do so. This leads Dewey to conclude that only one who already knows how to, that is, who has a habit of standing straight, is able to perform the act: "a man who *can* stand properly does so and only a man who can, does" (Dewey 1922: 29). It is in this way that Dewey argues that "the act must

come before the thought" (Dewey 1922: 30). This should not, however, be taken literally as a suggestion to act first and think afterwards, a principle which is promoted in certain parts of organization theory. Particularly, organizational theorist Karl Weick has endorsed the argument that in uncertain situations one should not put one's faith in past experiences. Therefore, when faced with uncertainty, a strategy cannot be rationally thought out, but should come about as a spontaneous intervention that can be rationalised only in retrospect (e.g., Weick 2001, 2007)[49]. Dewey, who was a firm believer in "intelligent inquiry into the means which will produce the desired result" (Dewey 1922: 28), especially when faced with uncertainty, is hinting, I believe, at something quite different. Namely, the importance of habits and acquired skills built through past experiences and careful training for our ability to think and inquire systematically into the situation at hand. Hence, to state that the act must come before the thought is not to say that we must act first and think afterwards, but rather that we only know how to think, inquire into, and pose judgment on the specificities of the situation because of previous context-specific experience in doing so; that is, because of "intelligently controlled habit" (Dewey 1922: 28). It is in this way that we can be said to "*know how* by means of our habits" (Dewey 1922: 177).

This argument has two important implications. On the one hand, it means that thinking and inquiring should be understood as habits which need to be learned, trained, and maintained. In this way the quote "learning is learning to think" (Dewey 1933: 176) reminds us that thinking and learning from our experiences does not come to us on a silver platter, but have to be formed. On the other hand, the argument that "concrete habits are the means of knowledge and thought" (Dewey 1922: 176) implies that, while all habits are situated, there is no such thing as a

[49] I will discuss this particular argument in length in Chapter 8.

universal kind of knowledge. A painter, a sailor, a scientist, or a physician have acquired different habits through their specific past experiences, training, practical skills, and interaction with their environment. Hence, when Dewey states that "[t]he scientific man and the philosopher like the carpenter, the physician and politician know with their habits not with their consciousness" (Dewey 1922: 182), it is to say that knowledge is always context-specific, built on concrete past experiences and situated in a particular environment. This is an argument against the idea that knowledge and learning can be universalised and formalised to fit all situations independently of context: It is an argument against the idea that "[b]ecause a thirsty man gets satisfaction in drinking water, bliss consists in being drowned" (Dewey 1922: 175).

A final point can be made about Dewey's understanding of habits. He divides habits into two kinds: "the real opposition is not between reason and habit but between routine, unintelligent habit, and intelligent habit or art" (Dewey 1922: 77). The first, he describes as "mechanical exercises of repetition in which skill apart from thought is the aim" (Dewey 1922: 71). He frequently refers to this kind of habit as routine, but also as unintelligent, unthinking, dead, or mechanical habit, or just as "absentmindedness" (Dewey 1922: 173). Although Dewey is aware that mechanisation of habit is of vital importance for human existence, he states that "[r]epetition is in no way the essence of habit" (Dewey 1922: 42). The second kind of habit, in contrast, shapes our ability to think, inquire, judge, and learn. Referred to as intelligent, artistic, or "reflective and meditative" (Dewey 1922: 209), this kind of habit is not (only) built on mindless repetition but springs from previous reflective thinking, inquiring, and judging in such a way that it becomes "an ability, an art, formed through past experience" (Dewey 1922: 66). This kind of intelligent habit can be described as "an acquired predisposition to *ways* or modes of response, not to particular acts" (Dewey 1922: 42). Learning is then essentially about the

"fostering of those habits and impulses which lead to a broad, just, sympathetic survey of situations" (Dewey 1922: 207).

7.4 When 'muscle knowledge' is overruled

Dewey's approach to learning can serve important functions in relation to the earlier example of the pregnant women: As a way to refine the understanding of the situation, to bring forth an alternative approach to learning related to the situation, and to discuss possible error management in the light of this and similar clinical situations.

The uneasiness described by the healthcare professionals during the episode leading up to the cardiac arrest, the intuition that something did not add up although all formal knowledge would have it otherwise, could be described, I suggest, as exactly the "delicate combination of habit and impulse" (Dewey 1922: 177), which inquiry, thought, and learning springs from. Because of earlier experiences with similar situations, that is, because of their skills and training in dealing with patients, the healthcare professionals 'knew with their muscles', as it were, that something was not right. As such, the experience of unsettledness and tensions, which to Dewey is the precondition for inquiry was present. However, for a multitude of reasons, the unsettled situation was never treated as a problematic situation where a problem is instituted and a solution called for. With one of the physician's words, the various hunches never got their 'second opinions', and a new and situational-adjusted judgment of diagnosis based on the experiences and skills of the healthcare professionals as well as the available facts were, consequently, not enacted. From a Deweyan perspective, this is the main dilemma of the case.

So what can such a Deweyan view upon the case tell us about learning? First, 'learning from experience' becomes something more than the ability to create

systemic improvements based on the definition of root causes. Instead, when viewing the learning objects not only as 'the system' but equally as the humans in it, learning becomes central to grasping the main problematic of the case; namely, that 'learning from experience' was *not* enacted, although experience was there to be learned from. Hence, understanding learning as situated, embedded practice involving body as well as mind, individual as well as system, force us to approach learning, not only as what is taken from the situation but jointly what is enacted in the situation. As such, the case shows us how important, albeit extremely delicate, 'muscle knowledge' is for acknowledging and learning about errors or safety-critical incidents in a concrete clinical situation. More specifically, the case shows us that intuitions, feelings, habits, and tacit knowledge founded on previous experience of and training in similar situations are easily overruled by formal knowledge, busyness, communication problems, systems failures, or entanglements of other elements in the complex arrangement of the specific clinical situation and everyday clinical practice in general. The importance of 'muscle knowledge' for learning in the situation constitutes a specific type of safety issue, which in many ways is counter to the logic of the present safety policy regime and the type of problems it encounters. Accordingly, the problem is not the fallible, variable, cognitively insufficient, and unchangeable human condition from which patients must be protected via failsafe systems. In this case, the issue is rather a fallible system where human skills, competences, habits, and bodily knowledge can play an important part in maintaining it and keeping it safe (Mesman 2008, 2009; Beguin 2009).

7.5 Intelligent habits and safety predispositions

The importance of healthcare workers' intuitions is not unheard of within patient safety policy. Revisiting the root cause analysis of the misdiagnosed pregnancy, one of the action plans did indeed involve the establishment of a timeout in relation to

acutely-ill patients as a way to create spaces for reflection and expression of doubt. Solutions such as timeouts are well known within safety engineering and quite commonly used within the patient safety programme as a safety solution. One can only assume that such solutions are likely to have successful safety outcomes if they are appropriately introduced into, adjusted to, and slowly integrated in clinical practice.

However, I suggest that a more fruitful way of addressing these questions might be derived from the approach to learning presented in this chapter. This involves addressing the tacit, habitual, bodily, and experience-based intuitions, feelings, and knowledge of the healthcare professionals, not only as emergency signals to warn about systems failure, but as the backbone of safe practices in healthcare. And here it becomes useful to consider Dewey's idea about intelligent habits. Following Dewey, intelligent and mindful habits and routines are built from experiences of previous reflective thought and inquiry, and it is only such experiences which foster the predisposition to act in certain ways instead of just repeating certain acts. By adopting this framework to questions of patient safety, archiving safety is not only about safety procedures, systemic improvements, or the creation of reflective spaces, but equally about the ability to foster a certain attitude or predisposition towards safety, which prompts healthcare professionals to develop and act in accordance with their 'intelligent habits', to react on impulses based on these habits, to inquire into uncertain situations, and to learn from their experiences. Safety then essentially becomes about learning: It becomes about developing safety dispositions and attitudes through a constant refinement of habits and, as such, it becomes about obtaining 'muscle-knowledge'. And this is not something that comes easy. Fostering habits and dispositions takes exercise, development of skills, the slow accumulation of experiences and, not least, training in reacting to impulses, feelings, and bodily knowledge.

Understanding learning in relation to healthcare professionals' development of safety dispositions, as an alternative to understanding it in relation to advancing systems safety via standardization, has consequences for how one might approach safety management. At this point, it is not unlikely that inspiration can spring from looking to what constitutes safety work today at the clinical level, some of which runs parallel with, or even counter to, the requirements of the safety programme. During my fieldwork, I met, for instance, patient safety representatives who had taken it upon themselves to instil thoughts and reflectivity into routines by asking 'why' as much as possible to their colleagues:

> "The proactive part of the job [as patient safety representative] is the most rewarding. And often they [your colleagues] may well have the answers themselves. For instance, when flushing a catheter, are you to flush it with sterile water or saltwater? To name a small thing. Well, try to think for yourself. This was also the way I learned best, when I was a student. Whenever people came and asked: 'why are you doing it like that? Or what do you think? What samples do you need to take, when you enter a patient with this or that condition? What do you think?' All of a sudden you have to think for yourself. And this is also what is dangerous about this patient safety thing. We can make these safe boxes. Thought-free institution. Everything is well thought out for you. But this might deprive people of their own thinking and then there will also be errors. So it's always a balance."

Although this quote can be seen as reflecting a classic discussion about standardization versus autonomy, it can also, with Dewey's insistence on the importance of distinguishing between intelligent and unintelligent habit, be taken as a discussion about how to establish habits (or routines) in the best way possible. Here, achieving patient safety becomes exactly a question of educating healthcare

professionals to acquire dispositions towards safety by fostering certain "*ways* or modes of response" (Dewey 1922: 42), as opposed to an understanding of safety as mere repetition (and standardization) of specific acts.

7.6 Reflectivity *and* habit: A note to practice-based learning theories

The abstract, cognitive, and systemic understanding of learning found, for instance, in the patient safety programme as well as in Peter Senge's and colleagues model on the learning organization have been criticised by promoters of more practice-based theories on learning and knowing (e.g., Fox 2000; Gherardi 2000; Lave & Wenger 1991; Wenger 1998). One of the most influential of these perspectives, situated learning theory, was proposed by Lave and Wenger (1991) as a way to address learning as a contextual and social process taking place in so-called 'communities of practice'. Participation is the anchor point of Lave and Wenger's theory, and, as such, they identify learning as participation in a network of relations. In important ways, Dewey's concept of learning can supplement these significant theories. According to Bente Elkjaer, situated learning theory operates on a quite abstract level, and therefore it answers neither the question of method nor the question of content in relation to learning. Here, Dewey can assist, Elkjaer argues, as he "answers to the 'how' of learning (through the use of inquiry) and the 'what' of learning (by developing reflective experiences)" (Elkjaer 2001: 440). By highlighting these two notions, inquiry and reflective experience, Elkjaer joins the common Dewey reception, where learning is primarily understood in relation to its explicitly reflective elements.

Yet, as I have argued in this chapter, there is more to Dewey than reflectivity. By bringing habits, intuition, and the body to the centre of learning and knowledge production, he supplements the vast majority of practice-based learning theories,

which have been said to pay "more attention to *social* relations, interactions, and discourses, and less to *bodily* practices" (Yakhlef 2010: 409). And Dewey is not the only one who can make up for this "relative neglect of embodiment" (Yakhlef 2010: 413). Within sociology, a number of influential sources have delivered more corporal perspectives on learning and knowing, explicitly focusing on dispositions, habits, rules, and intuitions (e.g., Bourdieu 1977; Mauss 1934; Merleau-Ponty 1962). While being perhaps the less appreciated of these, Marcel Mauss argues in his "Techniques of the Body" (1934) for a strong link between habits, the development of bodily skills, and learning. Mauss describes a wide range of bodily techniques including eating, washing, sitting and swimming. Such techniques are culturally specific, explicitly adapted to the situation, and should be understood as habits which need to be learned and trained. One of the numerous examples from Mauss' text concerns the technique of digging. During WWI, the English troops had to change 8000 French spades because the English soldiers did not know how to use them. This indicates, Mauss argues, "that a manual knack can only be learnt slowly. Every technique properly so-called has its own form" (Mauss 1934: 71). As such, Mauss is interested in "the shaping of the body through the mastery of specific assemblages of action, stored and transmitted in particular social organizations and relationships" (Hunter & Saunder 1995: 71). This understanding of learning in connection to context specific and slowly developed techniques is not far from John Dewey's focus on the importance of habits for learning, illustrated by, for instance, his earlier described account of what it takes to stand straight (Dewey 1922). But while the relationship between the habitual and bodily on the one hand and the reflective and cognitive on the other is quite unclear in Mauss' approach, this is where, I believe, Dewey has something important to offer. By explicating that intelligent habits are based on previous reflective thought and inquiry, Dewey connects the pre-reflective and reflective. As such, Dewey will at once agree that

"Learning is corporal, pre-discursive and pre-social, streaming from the body's perpetual need to cope with tensions arising in the body-environment connections" (Yakhlef 2010: 409), but, at the same time, insist that the way to know how 'to cope with tensions' rests on experiences and habits gained through previous reflective inquiry. It is especially because of this close connection between habit and cognition that Dewey is able to contribute significantly to recent debates within organizational research on recurring action patterns such as routines (Cohen 2007).

7.7 Experience- and habit-based safety management

I have, until now, primarily discussed the question of learning based on one particular example, the case of the pregnant women, which in Dewey's terms can be understood as an 'unsettled situation' that never turned into a 'problematic' one, as the healthcare professionals' habits and intuitions were, unfortunately, not taken as an occasion to inquire into the tensions and inconsistencies at the time of the incident.

Another situation must also be addressed. Namely, the root cause analysis conducted in the wake of the incident. From one perspective, the RCA can be understood precisely as an inquiry into an unsettled situation; a way to investigate what the situation was made of, what problems it instituted, as well as the available solutions to these problems. However, two things that question the interpretation of the RCA as an inquiry in Dewey's terms must be noted. First, as described earlier, the RCA resulted in three action plans that did, as I have argued, not really go 'to the roots of the problem', as it were. This, I believe, is due to the RCA's strictly standardized methodology and not least the predetermined template for the produced solutions, which rely heavily on systemic ideals rather than addressing issues of 'the human condition' (e.g., the skill of, and training in, responding to

intelligent habits and experience-based intuitions). In the following chapter, I elaborate on this problematic of the RCA. Second, as the atmosphere at the RCA sessions was highly tense, it can be argued that these meetings in themselves comprise an 'unsettled situation'. Although the group settled on a description of the incident and a list of action plans, the tension remained, I believe, somewhat unreleased. Hence, for a second time, the unsettledness of the situation is not resolved. As I have already suggested in Chapter 6, the main reason for these unresolved tensions was, I believe, the inability of the standardized methodology to address issues of professional responsibility. Under the banner of the blame-free perspective, the RCA must only address systemic causes and solutions. This keeps important questions from being asked about issues of habitual and experiences-based intuitions, but equally about the healthcare professionals' *obligations* to react on these intuitions, whether their own or other's. As such, faith would have it that the main problematic of the incident was reiterated in the RCA: Bodily knowledge, feelings, and tensions were overruled once again.

Based on the arguments of this chapter, the tensions and uneasiness felt at the RCA meetings should have been taken as an occasion for inquiring further into the problematic of the situation. Not to establish more root causes, or suggest new standards, but to somehow approach questions of professional responsibilities and duties related to the obligation to listen and react to more bodily kinds of knowledge. The purpose of addressing these obligations would not necessarily be to appoint individual blame because, as Dewey persistently claims, all conduct is social, and blaming single individuals is to create 'an unreal separation of man from his surroundings' (Dewey 1922: 18). This argument, which is at first sight very close to the argument of the safety programme, does not, however, entail that roles, responsibilities, and obligations should not be discussed as a natural part of an inquiry into a situation where things somehow went wrong. From a pragmatic

stance, individuals need to be held accountable to be able to learn; that is, to be able to act "differently *next* time" (Dewey 1932: 304). Therefore, it is necessary to address all the relevant components of the case, and that would not least mean to bring the learner, the 'human condition' as it were, back into safety, in terms of the habits, experiences, bodily knowledge, and cognitive capabilities of the healthcare professional.

Accordingly, Dewey's alternative approach to learning can function as a comment to the methodology of the RCA. Apart from the RCA's formal purpose of producing action plans, the sessions could also, and perhaps more importantly, function as an individual and collective context-specific learning experience, that is, if it was not restrained by a standardized methodology and a number of abstract principles of 'non-blame' and systems learning. By a systematic and thorough inquiry into the incident as 'a problematic situation' to be settled, the goal of the process would become more than action plans. It would concern the learning process of the participating personnel and the establishment of future intelligent habits built on inquiry into the particularities of the specific clinical situation. The analysis could then, to repeat an earlier quotation, help foster "those habits and impulses which lead to a broad, just, sympathetic survey of situations" (Dewey 1922: 207). Or in other words, it would leave the participants with one more safety experience to draw on in future safety critical situations. These suggestions will be discussed further in the following chapter, where the root cause analysis is once again approached as the epitome of the safety programme's perspective on safety management and its promotion of standardization as the one best way of organizing.

8. From Standardization to Resilience? New views on safety

Over the last few decades, healthcare has been deeply influenced by a number of international standardization movements, such as evidence-based medicine, quality assurance, and accreditation. Similar to other such movements in healthcare, the safety programme has standardization at its heart, and reducing variability is a key objective of its proposals. Advocates of the safety movement seek to promote standardization of safety practices not only by introducing formalising technologies and methods, such as incident reporting and root cause analysis, but also by endorsing a very specific picture of the safe organization; namely, as illustrated by the Swiss Cheese model, an essentially stable system with a number of safety gaps that need to be closed by the introduction of novel devices, procedures, and standards. This model of safety intervention can be expressed by the motto 'fix the system, not the people'. And, as it is believed that standardization is the primary defence against errors, the ideal becomes to create a healthcare system as independent of individual experience, habit, and memory as possible.

This standardization agenda has been questioned, even by members of its own ranks, not least because of a consistent lack of evidence of the positive effects of its own practices. For instance, a study conducted in ten North Carolina Hospitals (Landrigan et al. 2010), which had all introduced significant patient safety methodologies and measures during the last decade, showed that the rates of adverse events were essentially unchanged compared to the numerous studies (Davis et al. 2002; Schiøler et al. 2001; Vincent et al. 2001) conducted in the immediate aftermath of the Institute of Medicine report *To Err is Human* (Kohn et al. 2000). Such results have been said to demonstrate "the limitations of the patient safety movement" and suggest "that current thinking about, and approaches to, adverse events in healthcare, need immediate and serious reconsideration" (Sheps & Cardiff 2011: 148). Thus, in a recent article with the title "Patient Safety: A Wake-up Call", 'a new perspective' for risk- and error-elimination is promoted:

> "There is no question that a firm bedrock of standards, policies and procedures, as well as intensive clinical training are essential (as they have been in other risk critical industries), but they are insufficient to address the dynamic interactive nature of the factors that can lead to patient harm. A new perspective is needed, as has been recognized by all other risk critical industries, to deal with the challenge of becoming ultra safe." (Sheps & Cardiff 2011: 155)

Hence, becoming 'ultra safe' is no longer simply about standardization. Rather, safety is about adapting to a changing and unpredictable world, it is about "addressing the dynamic interactive nature of factors", and this is to be done by introducing the "relatively new concept" (Sheps & Cardiff 2011: 152) of system resilience into healthcare management:

> "[I]nsufficient attention has been given to understanding the nature and practice of resilience in the context of improving safety. Resilience

> addresses a much broader range of inquiry with regard to how work actually gets done, by explicitly exploring the wide array of threats, and their dynamic (and thus unpredictable) interaction, inherent in the work itself and how these can be understood, to mitigate and recover from, or prevent patient harm." (Sheps & Cardiff 2011: 152)

It is noted in an anthology on 'resilience engineering' that the concept of resilience does not stem from one school of thought or theoretical position, although it is largely based on theories of high-reliability organizations and safety engineering literature. Rather, the editors of the anthology note, "the notion of resilience had gradually emerged as the logical way to overcome the limitations of existing approaches to risk assessment and system safety" (Hollnagel et al. 2006: xi)[50]. Primarily, then, the 'resilience movement' constitutes a new stance on or attitude to safety management, sometimes represented as the New View (Dekker 2006), which involves rejecting the Swiss cheese model of organizational reality as stable and linear and replacing it with an understanding of organizations as complex, unstable, and changing entities, where failures are normal and, hence, where safety is not about preventing failures but about 'embracing' them through the creation of adaptive capacities. In this chapter, I focus on the resilience movement, its key principles and proposals, and, in particular, on the assumptions it shares with the patient safety movement. One of the ways I do this is by looking at the work of organizational theorist Karl Weick as representative of this 'new' view on safe organizing. Karl Weick and his colleagues, most prominently Kathleen Sutcliffe, are

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[50] The anthology *Resilience Engineering: Concepts and Precepts* is written in light of a symposium held, it is stated, because "[i]deas about resilience had been circulated more or less formally among several of the participants and the need of a more concerted effort was becoming obvious" (Hollnagel et al. 2006: xi). As such, different groups had begun focusing, it is said, on 'a similar class of problems' and the term resilience (but also terms such as robustness) was used more frequently, especially within the school of high-reliability organizations.

some of the founders of the so-called school of high-reliability organizations, as well as some of the first to introduce the concept of resilience into safety management literature, primarily with the book *Managing the Unexpected: Resilient Performance in an Age of Uncertainty* (Weick & Sutcliff 2007)[51].

In what follows, I inquire into the general assumptions of each side of the standardization/resilience divide and discuss how on closer inspection the two competing approaches to safety management are surprisingly similar in their main assumptions as well as in some of their limitations when it comes to understanding particular critical situations in healthcare. Not only do they both tend to work with *a priori* organizing principles, but they equally work with key assumptions about, for instance, the possibilities of eliminating risk by introducing substantial centralised organizational change initiatives quite independently of the clinical situation. Subsequently, I analyse a concrete clinical situation. This empirical case concerns a medication error that occurred in the passage between a paediatric clinic at the university hospital and the hospital's dispensary for cytostatic service production. Additionally, I discuss the 'solutions' proposed by the root cause analysis conducted in the wake of the incident. Although these solutions in practise seem to posit both standards and flexibility, and thereby can be said to combine the two dominant stances on safety management, it is argued that the idea of 'mixing' the two organizational traits might not overcome the original dichotomy between standards and flexibility understood as two distinct ways of organizing. The chapter ends by discussing the reception of Charles Perrow's *Normal Accidents* (1984) in

[51] It is only in the second and edited edition that the term 'resilient' figures in the title of this book (Weick & Sutcliff 2007). In the first edition from 2001, the title of the book is *Managing the Unexpected: Assuring High Performance in an Age of Complexity* (Weick & Sutcliff, 2001); however, also in this first edition of the book, resilience is understood as one of five characteristics of a high-reliability organization.

contemporary patient safety management and resilience literature and argues that common use of Perrow's argument misses his situation-based approach to safety management as well as his important insight that rules and flexibility should not be understood as separate organizational traits but as preconditioned by each other.

8.1 Safety management as prevention

Throughout this dissertation, I have frequently returned to the standardization ideal promoted by the recent patient safety movement, equally in its rhetoric of creating failsafe systems, in its preferred images such as the Swiss cheese model, as well as its tools and methodologies, such as the reporting and analysis of critical incidents. In this section, I return to the root cause analysis, and more specifically, how the RCA has been translated into Danish healthcare. As the most popular methodology for analysing critical incidents with the formalised purpose of developing standards to prevent future incidents of similar kinds, the RCA illustrates, in a rather epitomic way I believe, the programme's view on standardization as the road to safe organizing.

The RCA has become a widespread problem-solving procedure within a number of different organizational environments, and it has been an integrated part of the international patient safety movement since its inception. As with the rest of the patient safety programme, the RCA is rooted in the Anglo-American world, primarily in the US, where it has been developed as a healthcare technology since the mid-nineties onwards. In Denmark, hospitals introduced the RCA at the beginning of the present century concurrently with the introduction of the first

incident reporting systems[52]. Since the Danish Act on Patient Safety in 2004, which introduced critical incident reporting as a national obligatory safety technology for healthcare professionals in hospitals, the RCA has been a standard (although not obligatory) safety procedure in Danish hospitals. In 2010, the Danish safety act was expanded to include healthcare professionals in the primary sector, and one might reasonably expect that the RCA also takes root here. The following analysis is built primarily on documents from the Danish Society for Patient Safety written as manuals for healthcare professionals in order to guide the performance of the RCA (Danish Society for Patient Safety 2005; Jensen 2004).

The methodology of the RCA consists of three prescribed steps. It is officially stressed that variation when conducting the analyses should be minimised by closely following the prescription of these steps as laid out in the handbook (Danish Society for Patient Safety 2005). The first step of the analysis is to establish the 'event sequence', that is, the course of events that led to the incident. The event sequence is defined as "a precise chronological ordering of the chain of events that preceded the occurrence of an adverse event" (Danish Society for Patient Safety 2005: 9-10). Using words such as 'precise', 'chronologically', and 'chain' indicate the underlying idea implying the possibility of grasping reality in a linear rationalistic form. The second step of the analysis is to find the root causes of the incident by

[52] The root cause analysis was adopted from high-reliability industries into healthcare in the mid- and late-nineties. This development took place in a number of governmental and non-governmental healthcare organizations primarily in the US. The first Danish versions of the RCA were inspired by and developed in relation to American versions. In the Copenhagen Hospital Corporation's first report on patient safety from 2001, the first Danish notion of the RCA was developed based on the American accreditation organization Joint Commission's recommendations (Copenhagen Hospital Corporation 2001). In 2003, the Danish Society for Patient Safety published a handbook for root cause analysis in close collaboration with the Department of Veteran Affairs National Centre for Patient Safety. The later edition of this handbook (Danish Society for Patient Safety 2005) is still used as the primary RCA manual for risk managers in Danish hospitals.

use of 'the event sequence' to define the causes of the incident. As such, "root causes are identified by drilling down through all the layers of a sequence of events to find its innermost core, that is, the actual root cause or causes of an adverse event that caused harm to one or more patients" (Jensen 2004: 20). This method of seeking to reveal 'the innermost core' involves a standardized interrogation technique, where the task of the team is to ask 'why' to the questions posed by the incident until it 'no longer makes sense':

> "Root causes are produced by asking "why …", "why …", "why …" and answering "because …", "because …", "because …", until it no longer makes sense. This exercise – based on the event itself or the factor that provoked the event – allows the team to construct a causal chain that concludes with the actual cause of the adverse event: "If we eliminated this/these cause(s), could we have prevented this event?" If the answer is "yes", it can be concluded that the actual root cause(s) of the event has/have been identified." (Jensen 2004: 24)

Apart from supporting the vision of the clinical situation as a linear chain of events that can be rationally differentiated as well as chronologically and causally ordered, the quotation also points to the idea that the stream of questions will find its natural limit when it reaches the 'real' root cause of the incident, defined as the cause that, had it been eliminated beforehand, would have prevented the incident.

The identification of root causes leads to the third and last step of the root cause analysis: the formulation of action plans. This procedure is described as follows: "The aim of root cause analyses is to investigate why an adverse event happened and to prepare a prevention strategy so similar incidents can be avoided in the future" (Danish Society for Patient Safety 2005: 4). A number of assumptions are inherent in this statement, of which the most important is the idea that the analysis should result in readily implementable action plans, which will *prevent* incidents of

similar sorts in the future. In this way, the RCA represents the ideal of failsafe organizing, which is the foundation of the patient safety movement: It is believed that by introducing prevention strategies containing standardized procedures and safety systems, similar incidents will be avoided in the future. Moreover, it expresses the assumption that human errors are the essential problem for which reason we need to create systems that can protect us from such errors. These assumptions are expressed concretely in some of the suggestions relating to the construction of actions plans, which contain some of the following rules of thumb:

> "Reduction of individual memory by introduction of checklists and guidelines; simplifying work processes so they involve the lowest possible number of steps; standardize processes and equipment; establish barriers/safeguards, blockings or alarms." (Danish Society for Patient Safety 2005: 45)

Beneath this paragraph, it is established that "[t]o a lesser extent focus should be on enjoining greater awareness or establishing more training" (Danish Society for Patient Safety 2005: 46). In this way, the mantra of the safety movement about creating safer systems, which are as independent of individual memory and experience as possible, is played out in the concrete technology[53].

The ideal of the programme can be summarized under the heading *prevention*, i.e., the ability to create standards or procedures that have the capacity to close the safety

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[53] One thing is the formal descriptions of the purpose of the RCA; another thing is the concrete practices of conducting root cause analyses in Danish healthcare. When the technology meets practice, it becomes evident that past experiences are not orderly, linear, or causal and that it takes a lot of time, energy, and construction work to create a comprehensible account of what happened. However, despite a possible clash between organizational reality and the formal descriptions thereof, the *results* (i.e., the action plans) of the processes are likely, as the empirical case presented later in this paper suggests, to adhere to the formal goal of the RCA; namely, to produce standards and introduce safety systems.

gaps in the (presumably stable) system. These findings are then to be 'transmitted' across organizational space to prevent similar incidents from taking place elsewhere. This idea of creating safety by closing safety gaps in a system characterised by a linear rationality has been criticized by numerous organizational researchers and social scientists, who have instead focused on the need for flexible organizing in a complex and uncertain world.

8.2 Safety management as resilience

Within parts of organization studies and safety research, the standardization approach of the safety programme, and not least the image and methodology of the root cause analysis, has been criticised for its linear understanding of reality and for the general assumption that errors have 'roots' or primary causes: "You can find causes of failure everywhere. The causal web quickly multiplies and fans out, like cracks in a window. What you call "root cause" is simply the place you stop looking any further" (Dekker 2006: 77). And, as noted, the particular 'place you stop looking any further' is likely to be at a 'cause' for which a cure is already known (Rasmussen 1999). In line with the critique of looking for root causes, a similar criticism concerns the tendency to address errors and accidents from hindsight, that is, when they have already happened. This increases the tendency, it is argued, to conceive of errors through linear and causal thinking (Dekker 2006; Woods & Hollnagel 2006). Also, these critiques have recently been stated in relation to the healthcare arena, where the patient safety programme, for instance through RCAs, is said to be "generally prone both to see problems in terms of linear cause and effect ("root cause") relationships, and hindsight bias" (Sheps & Cardiff 2011: 154). This has, together with the strong focus on standardization that follows from this understanding of organizational reality, been taken as one of the reasons for the missing evidence of positive results of the movement. As described in the

introduction to this chapter, these critiques of the standardization trends of recent safety management has led safety researchers to stress the importance of flexibility, adaptability, and resilience when organizing for safety (e.g., Dekker 2006; Hollnagel et al. 2006, 2008; Weick & Sutcliff 2007). The 'old view' of standardization and human error should be replaced by what is simply referred to as the New View (Dekker 2006).

Much literature on resilience in high-reliability organizations is built on or inspired by the work of organizational theorist Karl Weick, who is, perhaps more than any other organizational theorist, associated with notions of flexibility, innovation, adaptability, loose coupling, and improvisation in the study of safety in organizations. To address some of the assumptions and lines of argumentation employed by advocates of a resilience view on patient safety, I discuss a few of Weick's most widely cited texts on safety. One of these is his analysis of the Mann Gulch forest fire disaster in 1949, in which thirteen firefighters lost their lives. Although Weick primarily uses the analysis as an example of a collapse in sense-making, it is a typical example of his view on the organization of safety and risk and on the possibilities of creating resilient organizations (Weick 2001: 100-124). A number of incidents during the fire attracted Weick's attention. When the fire was getting out of control, the foreman of the firefighters, Dodge, yelled to his men to 'drop their tools', after which he lit a fire and ordered everyone to lie down in the already burnt area of the forest. According to Weick, Dodge's use of an 'escape-fire' was an on-the-spot intervention, which was a result of creativity and improvisation. In this way, Dodge is a perfect example of what Weick, with reference to Lévi-Strauss, calls the bricoleur; namely, a person who uses "whatever resources and repertoire one has to perform whatever task one faces" (Weick 2001: 62). However, the crewmembers did not drop their tools and neither did they lie down in Dodge's escape fire. The result was that out of sixteen firefighters only three survived

(including Dodge). Weick makes use of the Mann Gulch case to contrast two ways of organizing. The first is characterised by "doing everything by the book" and depending on "dispatchers, specialization, regimentation, rules". This is in turn contrasted with the notion of organizational design as improvisation, which is grounded in "having no book" but having "discretion to dispatch oneself" (Weick 2001: 111). Taking this further, Weick develops a notion of organizational design as improvisation, which he contrasts with direct control and standardization:

> "Direct control of improvisation is […] difficult because it is self-defeating to standardize performance. The advantage of improvisation is that it is responsive to ongoing change in the organization and the environment, and standardization removes this advantage." (Weick 2001: 77)

In this way, improvisation is connected to responsiveness, change, and performance, while control and standardization are defined as their opposite.

The refusal of the firefighters in the Mann Gulch case to 'drop their tools' reoccurs as the general theme of the article "Drop Your Tools: On Reconfiguring Management Education" (Weick 2007). The expression is now made into a rule-of-thumb:

> "If you drop tools, then ideas have more free play. Just think of the maxim that when you have a hammer, the entire world turns into things that need to be nailed. Take it one step further. If you drop your hammer, then the world is no longer a world of mere nails." (Weick 2007: 11)

The analogy with the hammer might seem alluring but what does it mean? What are the tools that must be dropped? And what does it imply to drop something? Weick deploys a number of very different stories from safety science literature, which,

according to him, follow the same pattern: Those implicated *fail* because they refuse to drop their tools. The stories concern firefighters who die close to safety zones as a result of stubbornly holding on to their tools; fighter pilots who lose their lives before ejecting themselves from aeroplanes; engineers on the Challenger project who "failed to drop their launch routines" (Weick 2007: 6) in spite of burned O-rings; naval personnel who refuse to drop their steel-toed shoes before abandoning a sinking ship; investment firms who hold on to old financial models; NASA, who in the face of the Columbia shuttle disaster, "could not drop its bureaucracy" (Weick 2007: 6); physicians who stubbornly hold on to wrong diagnoses, and so on. However, it is neither the practice of firefighting nor doctoring, but rather management education, which is the actual focus of the article. As such, the above mentioned cases are explicated as 'analogous situations' to when "students and professors hold onto concepts, checklists, and assumptions that similarly weigh them down, reduce their agility, and blind them to what is happening right here and now and how they can cope with it" (Weick 2007: 6). It is evident that bureaucracy, routine, and doing things by the book are the primary enemies in Weick's analysis. A number of statements underline this argument: "older tools tend to be overlearned" (2007: 13-14); "drop traditional ways of acting" (2007: 14); and, quoting an investigation report concerning the Challenger disaster, "when lives are on the line, flexibility and democratic process should take priority over bureaucratic response" (2007: 6)[54]. Weick concludes his article by summing up his organizational enemies under the common headline 'rationality':

> "To drop the tools of rationality is to gain access to lightness in the form of intuitions, feelings, stories, improvisation, experience, imagination,

[54] Cited from H. W. Gehman (2003) Columbia Accident Investigation Board: Report (Vol. 1), Washington DC: U.S. Government, p. 203.

> active listening, awareness in the moment, novel words, and empathy. All of these non-logical activities enable people to solve problems and enact their potential." (Weick 2007: 15)

Weick's 'non-logical' position, as well as his critique of standardization and 'doing things by the book', appears to stand in sharp contrast to the patient safety programme's standardization and rationality claims. While I summed up the safety programme's general goal as striving towards *prevention* through standardization, Weick's argument could, as described, be referred to as a quest for *resilience* to be obtained by experimentation, flexibility, and innovation. Here, the organization is not understood as a stable system with a number of safety gaps to be closed via standardization, but as an ever-moving, ever-changing, complex entity, which has to be able to adapt to its unstable surroundings[55].

The influence of Karl Weick and his colleagues, most prominently Kathleen Sutcliffe, on recent discussions of safety management in healthcare are partly stirred by their texts specifically on patient safety (Vogus et al. 2010; Weick 2004; Weick &

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[55] A number of inconsistencies in Weick's approach can be found, some of which are important for the further argument of this chapter. The dichotomy between standardization, rules, control, and rationality on the one hand, contrasted with improvisation, flexibility, and other so-called 'non-logical activities' on the other, functions as a normative statement although it is displayed predominantly as an empirical finding. As such, Weick's arguments become widely abstracted, and it is almost impossible to extract the practical consequences of his recommendations. In the case of physicians' reluctance to skip an initial diagnosis, for example, it is unclear what the 'tools' that need to be dropped are: Is it the method used to arrive at a diagnosis, the concrete wrong diagnosis, or the mindset of physicians after giving a diagnosis? It does not clarify the issue when Weick quotes a solution to the problem of misdiagnosis, which involves the following three steps: Voicing aloud the symptoms of the patient, voicing an expanded list of diagnoses, which might fit the symptoms, and planning how to eliminate these diagnoses (Weick 2007: 11). One would readily propose that such a set of steps could indeed be understood as tools – or as rules, standards, or routines to be followed – rather than 'non-logical' activities. In this way, tensions in Weick's own material seem to suggest that, when it comes to concrete organizational problem solving, the grand words of improvisation, going without rules, and dropping one's tools are not that easily translated into practice.

Sutcliffe 2003)[56], but more importantly by their overall framing of safety as a question of reliability, resilience, sense-making, improvising, etc., with popular titles such as "Managing the Unexpected: Resilient Performance in an Age of Uncertainty" (Weick & Sutcliff 2007). Hence, in recent texts about the necessity of adopting a resilience approach to patient safety management, it is stressed that complex and rapidly changing environments such as healthcare require high-reliability organizations as well as 'reliability professionals' who "constantly scan the horizon for potential disasters and act to prevent them" (Bloom & Wolcott 2012: 4) and, with reference to Weick and Sutcliff, who " 'act mindfully' to 'catch the unexpected' " (Bloom & Wolcott 2012: 4). Elsewhere, in a call for a new approach to safety in healthcare, it is stated that "safety is about the individual and organizational capacity to deal with novel, generally unexpected events arising from the interaction of latent factors within the system" (Sheps & Cardiff 2011: 148), and with another reference to Weick (1998): "enhancing safety is a continuous and proactive task that requires dynamic, interactive and reflective cognitive processes

[56] Some of Weick's more specific analyses of healthcare are less abstract than his general stance on safe organizing, which I have illustrated by some of his most famous tales of safe or unsafe organizing, such as the Mann Gulch firefighters or the Naskapi Indians (see the following section). For instance, the paper "Hospitals as Cultures of Entrapment" by Weick and Sutcliffe contains a number of important considerations, not least on the possibility that when people sometimes fail to react to failure, it might not be because of fear of blame, but rather because of strategies of justification (Weick & Sutcliffe 2003) – the question of normalisation of deviance has been discussed by Vaughan (1996), and in the accounts of medical error presented in Chapter 5, the tendency that failures are easily justifiable by the medical community constitute part of the so-called problem of incompetence. What I have presented, then, is the stance or attitude to safety management that can be derived, on a more generic level, from the Weickian corpus, not least from his many tales of safe or unsafe organizing. This is important, as it is this stance on organizational reality that is dominant in resilience literature, and it is this stance, I believe, which is likely to be repeated in and translated into safety management. From this perspective, the paper on 'hospitals as cultures of entrapment' aligns well with the general attitude that healthcare institutions, when left without proper safety engineering, are likely to support deviant conduct and that they are unfit to adapt to the changing demands of the environment (Weick & Sutcliffe 2003).

such as "sense-making" (…) to enhance vigilance in all aspects of organizational work" (Sheps & Cardiff 2011: 150).

8.3 Opposed – and yet so alike

As the previous analysis of the two dominant positions within safety research shows, they are opposites in significant ways. While the standardization/prevention approach to safety management conceives of organizational reality as stable and bounded, the flexibility/resilience approach conceives of it as ever changing and always in a process of becoming. This difference can be taken as one of the main explanations for the discrepancy between the organizing principles suggested by the two paradigms. In a stable, unchanging, and essentially predictable and linear reality, safety is about installing the right procedures and rules to prevent errors and mishaps. When, on the other hand, organizational reality is understood as ever changing, it makes no or little sense to introduce standards and rules to prevent errors. Instead, safety is now about being prepared to face the new; it is about being adaptable and innovative.

Yet, on closer inspection, the two seemingly opposed approaches also share a number of striking similarities; indeed, they share key assumptions about safety management. In what follows, I will briefly explore a few of these similarities. First, as already suggested in the introduction to this chapter, both positions promote a dominant organizing principle – 'one best way of organizing' – quite independently of context (Du Gay & Vikkelsø 2013). Interestingly, both approaches stress how the new principle, the 'new way', is radically different from the 'old way'. Just as the advocates of the patient safety programme often argue for a radical break with the past and describe themselves as instigators of 'the new paradigm', so too do

advocates of the resilience approach, who appear equally keen to espouse their own 'epochal' significance:

> "[R]esilience engineering tries to take a major step forward, not by adding one more concept to the existing vocabulary, but by proposing a completely new vocabulary, and therefore also a completely new way of thinking about safety. With the risk of appearing overly pretentious, it may be compared to a paradigm shift in the Kuhnian sense." (Woods & Hollnagel 2006: 2)

In this way, both stances share an assumption that if we just change our perspective on safety and organizational reality, safety is obtainable: If we start thinking differently, for instance, in terms of systems and 'non-blame' (both notions promoted equally by the safety programme as well as the 'new' resilience approach), or if we just "move clinical and organizational thinking to the more cognitively relevant areas of resilience thinking" (Sheps & Cardiff 2011: 150), we are much closer to the ideal of becoming safe. Thus, they appear to believe that 'perfect' safety management is obtainable. Through safety engineering and clinical governance, "health care can become ultra-safe" (Sheps & Cardiff 2011: 156) – just as in aviation, where it took, they add, 60 years. The difference between the two approaches on this particular issue is that, where the standardization approach supports the idea that 'we' can become ultra-safe through error and risk elimination, the resilience approach adopts:

> "a functional point of view in which resilience is an organisation's ability to efficiently adjust to harmful influences rather than to shun or resist them. An unsafe state may arise because system adjustments are insufficient or inappropriate rather than because something fails. In this view failure is the flip side of success, and therefore a normal phenomenon." (Hollnagel 2006: 14)

The general faith in safety engineering as a reliable way of creating safe organizations is reflected in the fact that both approaches locate themselves in the so-called high-reliability school of contemporary safety literature. This fraction of literature is often contrasted with the more pessimistic 'normal accident' theory fraction inspired by Charles Perrow's *Normal Accidents* (1984), which is characterized by a less enthusiastic attitude towards the positive effects of safety engineering and system improvement processes.

Other crucial similarities concern the two approaches' shared devaluation of experience, skill, and training as dominant factors in maintaining safety and in the promotion of the system as the dominant warrant for safety. From a standardization approach, the ideal is standardized space with no possible variability, that is, a stable safety system as independent of individual experience as possible. In relation to the root cause analysis, this ideal is expressed in the request that action plans are, for instance, based on a "[r]eduction of individual memory by introduction of checklists and guidelines" and should refrain from establishing "greater awareness or establishing more training" (DSPS 2005: 45-46), as quoted earlier.

Although 'resilience literature' is somewhat ambivalent when it comes to the question of practice and training, the general attitude seems to be that in a fast changing and complex world we cannot rely on our past experiences.

> "We are consequently constrained to look at the future in the light of the past. In this way our experience or understanding of what has happened inevitably colours our anticipation and preparation for what could go wrong and thereby holds back the requisite imagination that is so essential for safety." (Woods & Hollnagel 2006: 2)

The same goes for Karl Weick, who often argues that old ways are "overlearned" and that knowledge, skills, and practices are of less use in a so-called "fluid world"

where "wise people know that they don't fully understand what is happening right now, because they have never seen precisely this event before" (Weick 2001: 113). One of Weick's most well-known illustrations of these views, and a story to which he often returns, is the Naskapi Indians' hunting ritual, which he determines as "strategic wisdom as a source of resilience". The Naskapi Indians 'planned' future hunts by holding bones over a fire until they cracked, and the direction the bones pointed would decide the next hunting spot. The effectiveness of this ritual is, according to Weick, specifically that the next hunting area is *not* decided by past experience but completely randomized: "The practice of divination incorporates the attitude of wisdom because past experience is discounted when a new set of cracks forms a crude map for the hunt" (Weick 2001: 112). Weick continues with a rather cryptic treatment of the concept of experience:

> "But past experience is also given some weight, because a seasoned hunter 'reads' the cracks and injects some of his own past experience into an interpretation of what the cracks mean. The reader is crucial. If the reader's hunches dominate, randomization is lost. If the cracks dominate, the experience is discarded." (Weick 2001: 112)

In this way, the reader is crucial, but not because of his past experience, which he to some extent injects into his interpretation, but rather because of his ability *not* to let his experience and hunches dominate. This supports the notion of the individual in a resilient organization as someone who is alert to the new, who adapts, and who does not let the inbuilt habits and routines of past experiences distract him.

Moreover, the systemic perspective on failure is another reason to question the importance of skills and competences. When failures are understood as resulting from the complex interplay of systemic components, then skills and competences of the individual person are not going to do much good: "While we like to think of

successes as the result of skills and competence rather than of luck, this view is just as partial as the view of failures as due to incompetence or error" (Hollnagel et al. 2006: xi).

A last similarity between the two stances on safety management should be mentioned. Both approaches are strongly interventionist, which means that they support a strong reform agenda in healthcare and demand change in terms of new safety initiatives – even as solutions to smaller safety issues. With the patient safety programme, this tendency is expressed through the introduction of new rules, guidelines, checklists, or standard operating procedures as the most obvious answers to safety concerns – as if safety is about filling out organizational space with a rule or procedure for every possible cause of action or, with the by now much referred to illustration of the Swiss cheese, as if every safety gap needs to be 'closed' by a new safety system, device, or procedure. In the resilience literature, change is approached as the condition as well as the cure, so to speak. In fast changing environments, one needs to be able to change and adapt, improvise, innovate, etc. It has been argued that this notion of change as an endless process of adaptation and innovation is not only a Weickian stance, or an attitude characteristic for safety engineering literature, but has become pervasive in much contemporary organization theory (and poststructuralist social scientific research in general), whereby stability is no longer discussed "except 'in passing', as a provisional accomplishment" (Du Gay & Vikkelsø 2012)[57]. Although the two approaches to change are quite different, the result is a shared faith in, often centralised, managerial reforms and organizational change initiatives. Moreover, it goes for both

[57] It must be noted that the turn from standardization to resilience in patient safety can, to some extent, be understood as part of a larger trend in healthcare (and in public policy in general), where 'innovation', and not least user-driven innovation, is increasingly promoted as the solution to a large range of problems.

stances that they pay little attention to the practical means through which the introduction of these new initiatives into already existing structures of organizational life and routines are to be undertaken. Additionally, the issue of introducing new practices is predominantly addressed as a problem of 'implementation', where the 'gap' between best practices (whether standards or improvisations) and actual practices are acknowledged but mainly approached as a question of 'culture'; that is, the readiness of healthcare professionals to adapt to, or put to work, new safety visions.

These similarities of the two approaches can explain why it does not necessarily seem contradictory to introduce both perspectives in concrete safety management initiatives. As when an article in *Nurse Leader* describes how 'personal copies' of the books *Human Error* by Reason and *Managing the Unexpected* by Weick and Sutcliff are handed out simultaneously at an educational programme on 'safety culture' for clinical managers at the teaching hospital Beth Israel Deaconess Medical Center in Boston (Anderson 2006). Or when, to name one of the more creative interventions, traditional root cause analysis is described as a sense-making process[58]. There is a good chance, I believe, that the coming years will show us increasingly more examples of how resilience concepts and methods are being introduced into safety management in healthcare. It is equally my guess that the concrete initiatives will be working somewhat along the lines of the already established management initiatives. It will concern, for instance, modifying or substituting the RCA with new survey tools that are better at "reflecting resilience concepts" (Sheps & Cardiff 2011: 155),

[58] Material for 'Patient Safety Analysis Training" (Columbia University/Agency for Healthcare Research and Quality). See:
http://dkv.columbia.edu/demo/medical_errors_reporting/site/module3/0800-healthcare.html
as well as the 'Case study practice kid':
http://dkv.columbia.edu/demo/medical_errors_reporting/site/pdf/PSATPracticeCaseWeb.pdf
(Retrieved 29 June 2013)

or it will concern initiatives such as the suggestion to create a new organizational function or organ in hospitals; a so-called 'interprofessional Safety Performance Department' that;

> "should be acquainted with the concepts of high reliability, resilience, and have investigative skills congruent with the "new view" (…) such a Department would be a clear signal that the organization recognizes adverse events are likely to occur as part of normal work and that every organizational level and professional group needs to be engaged to ensure effective communication, sense making, and reflection on their work as central to the anticipation of patient harm." (Sheps & Cardiff 2011: 155)

Such a department, it is further argued, should work to create 'cross-unit learning'. It is evident, then, that in recent calls for resilience (just like the calls for standardization), the problem of patient safety is largely determined as a failure to disseminate learning across different contexts;

> "There is little, if any opportunity for cross learning with regard to preventing harm despite similar challenges presented by technology, human factors and organizational constraints. This is partly a professional isolation issue, and partly the result of the lack of an organization-wide structure focused on learning from near-misses and adverse events." (Sheps & Cardiff 2011: 154)

In this way, the ideal of transferrable (i.e., generic, trans-contextual) learning, discussed in Chapter 7, is still dominant.

It is perhaps not surprising that the resilience approach is slowly gaining terrain in safety management because, to some extent, 'the New View' has been part of the present reform agenda from the beginning. In *To Err is Human* (Kohn et al. 2000), the systemic perspective on error is highlighted by reference to, for instance, Charles

Perrow, and, as indicated in Chapter 5, there is a pronounced ambivalence as to whether errors are understood as essentially human (to err is human), 'the old view', or as essentially systemic, 'the new view'. Of these arguments, the first is used to maintain the necessity of creating failsafe systems and introducing standards as the solution to safety threats, whereas the second argument is used to promote the blame-free agenda in healthcare. In terms of the technological solutions promoted by the patient safety programme, such as incident reporting and root cause analysis, it is, however, evident that 'the old view' is dominating present managerial efforts. This tension, which can also be linked to the discussion of the programme's two opposed logics of accountability and learning in Chapter 7, can explain why the enactment of blame-free root cause analysis processes and the like are at times a tense and unsettling business. At other times, however, the two stances on safety management are 'combined' less problematically in safety solutions. I will now turn to a critical incident and the 'solutions' proposed by the subsequent root cause analysis to discuss the possibility of combining the two stances.

8.4 A factor-ten error, failed safety steps, and an experienced nurse

In the spring of 2010, a critical incident took place at the large Danish university hospital where I conducted my fieldwork. The situation concerned a medication error that occurred in the process of producing chemotherapy drugs for a small child. Caused by unreadable script on a handwritten prescription, as well as a number of failed safety steps, the university hospital received two doses of chemotherapy ten times the prescribed strength from the hospital's dispensary. Had the so-called factor-ten error (ten times the prescribed dose) not been averted by an

attentive nurse just before the chemotherapy was to be given to the child, it would most likely have had a fatal outcome.[59]

The root cause analysis of this event lasted for two meetings of around two hours each and involved the participation of twelve people, including frontline personnel, team leaders, the centre director of the implicated medical centre, a quality coordinator, the hospital's risk-manager, and two representatives from the regional unit for patient safety[60]. Based on my observations of the root cause analysis and the final written report of the process, as well as journals and other materials, it is possible to summarize the case thus:

A paediatrician at the university hospital orders 16.5 mg of Adriamycin for a child with a handwritten prescription. Although the punctuation is hard to read (it is unclear whether it says 16.5 or 165), a colleague provides the order with a countersignature: An established safety procedure to ensure the correctness of the prescription. Subsequently, the prescription is faxed from the clinic to the hospital's dispensary for cytostatic service production. At the dispensary, an experienced dispensing chemist performs a second safety procedure; he double-checks the prescription by performing a calculation of dose in relation to the child's body surface (the body surface area (BSA) is calculated on the basis of height and weight).

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[59] Errors due to illegible handwriting on prescriptions and in patient records is a known and discussed problem in patient safety literature, and it is often used as one of the reasons for introducing IT systems such as electronic patient records or electronic systems for prescriptions (Aspden et al. 2006). The specific problem of factor-ten errors is also well known. In one study, it is concluded that ten-fold prescribing errors in a 631-bed American teaching hospital occurred in more than 0.5 per cent of paediatric admissions. Out of the 200 tenfold prescribing errors, which were detected at the hospital during an eighteen-month period, 87 of them were caused by a misplaced decimal point (Lesar 2002).

[60] The involvement of different parts of the healthcare system meant that it was one of the representatives from the regional unit for patient safety who led the meeting instead of the hospital's internal risk-manager, who is normally in charge when the incident is located in the hospital only.

Yet, he also reads the order as 16.5 mg and therefore approves it before sending it for mixing. At the service production, an inexperienced pharmacologist, who prepares a pack of materials for mixing, reads the order as 165 mg and packs it according to this measure. This package is passed on to the mixing room, where two persons are present: A mixer – an experienced chemist's assistant – and a helper – a pharmacologist. Both read the order as 165 mg and the already prepared package confirms their reading. However, the mixer is concerned about such a high dose for a child and states this unease a couple of times aloud. Confronted with this, the pharmacologist argues that the dose must be correct, as the dispensing chemist has approved it. The mixer accepts. After production, the mixtures are passed on to a second dispensing chemist with little experience in the production of chemotherapy for children; he also reads the prescription as 165 mg and approves it, thereby performing a third safety procedure. The mixtures are sent to the clinic. When the mixtures are prepared for administering to the child, an experienced nurse notices the mixture's abnormal colour; it seems to be too red. She examines the original order in the patient's journal, after which the factor-ten error is discovered and the risk of potential injury averted.

8.5 The root cause analysis and its solutions

Approaching the described situation from the perspective of contemporary patient safety management, the root cause analysis is the obvious methodology to tackle the critical incident, not least to create systems learning through determining the primary causes and making sure that systemic improvements are set in place to avert, as it were, the causes of the incident.

In the RCA that followed the incident, the problem of variation was, as expected, determined as the primary cause of the incident. First of all, perceived from within

the safety programme, and inspired by human factors research and cognitive psychologists such as James Reason, the unreadable handwritten number is quite a classic case of a human error caused by 'normal' human factors such as sloppiness and inattention; it is part of the 'human condition'. The other main problem with the handwritten prescription is, from this perspective, that to be able to correctly decipher the indistinct handwritten number, one has to rely on the experience of the person handling paediatric chemotherapy medication. This is also the case with the last control procedure: To be able to approve the mixtures without a new calculation of size and dose, one needs experience. Hence, in relying on experience, the system contains an element of chance; a variation problem that can only be solved by standardization. At the meetings, a representative for the regional unit for patient safety, who is guiding the process, expresses the overall problem of the factor-ten error like this: "This is a classic example of how it can go wrong when we build our systems on experience". And later: "Here we have a system, which is not safe enough when it comes to people who have no experience with chemotherapy for children. It is all about the system".

In response to the question, "How can a factor-ten medication error occur in the process of dispensing chemotherapy to a child?" by which the RCA is initiated, three answers (root causes) are offered and for all three, action plans are provided: (1) The main root cause of the incident is agreed upon as being the problem of the use of handwritten numbers, especially in relation to punctuation, on faxed requisitions. The action plan departing from this root cause concern the establishment of a system that insures electronically written numbers. (2) A second root cause is defined as the problem that the last safety procedure, where a dispensing chemist approves the mixtures, does not include a calculation of dose in relation to the child's surface. Here, the main action plan concerns the establishment of an extension of the last safety procedure, which is now to ensure an additional

calculation of surface and dose at the end of the production process. (3) Third, the mixer's suspicion that something was not right leads to the formulation of a root cause that confronts the non-existing praxis for responding to doubts and hunches from the personnel in the cytostatic production process. Here, it is suggested that a so-called 'action-card' or sticker system should be implemented, which allows the mixer (or other people in the process) to express doubts by way of red stickers.

Evidently, the action plans are all in accordance with the overall ideal of the safety programme; namely, to identify the standards and rules that can be implemented so as to prevent future incidents. However, on closer inspection, the root causes and action plans are slightly different. From the perspective of eliminating variation in the system by reducing reliance on experience, the two first root causes and their solutions are just by the book. In the final RCA report, both causes are crossed off as confirming the question, "If the root cause had not existed, would the incident have occurred?". Following this logic of prevention, the action plans, which are designed to eliminate the root causes, simultaneously remove the possibility that future incidents of a similar kind can occur. They thereby fulfil the primary goal of the RCA to prevent errors through standardization.

However, the last root cause is somewhat different. Although the action-card solution is certainly a standard, the expression of hunches through red stickers is a kind of 'whistle blower' function which indicates that perhaps the perfectly failsafe and stable system is not attainable, and that humans are necessary, not least to detect system breakdowns. In this way, the 'action-card' solution is quite similar to the 'timeout' solution from the root cause analysis process I inquired into in

Chapter 7[61]. Here, the problem of hunches and intuitions about misdiagnosis being overruled led to the establishment of a 'timeout' function so that, in the handling of acutely-ill patients, the implicated healthcare personnel had the opportunity to express doubts. These kinds of solutions are very much in line with the thoughts about resilience that I have laid out above. Here, it is precisely stressed that "sensitivity to weak signals – that the work is not going as planned or expected – and understanding that unexpected resonance amongst actors, equipment and patients can create novel problems (surprise) is central to creating safety" (Sheps & Cardiff 2011: 155). Because of dependency on human variability, as it were, the red sticker action plan is presented as a less perfect root cause solution in the RCA report; to the question of whether an elimination of the root cause would have prevented the incident, the answer is marked with a cross in the 'Don't Know' box. Following the resilience approach, a lack of 'prevention' would not degrade the solution. We never know whether incidents are prevented, the argument goes, and this is exactly why we need resilient and adaptive organizations.

Although the 'solutions' are not deemed equally perfect from the perspective of the present safety programme's ideal of reduction of variability, the case can be seen as evidence that in certain concrete safety practices the principles of the 'old' and the 'new' view on safety management are quite unproblematically mixed in solutions to safety issues. This resonates with current calls, not least within Science and Technology Studies, for instance, for more context dependent types of standardization.

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[61] The importance of responding to hunches and insecurities is acknowledged within the present safety programme. However, this importance is mostly translated directly into standards. Apart from 'timeouts' and 'action-cards', it is, for instance, reflected in the view on 'safe communication'; that is, what and how to ask questions in safety critical situations (for a Danish example see Danish Society for Patient Safety 2007).

8.6 A situated standardization approach

In a recent piece, Teun Zuiderent-Jerak introduces the notion of 'situated standardization' in order to "contribute to a more processual understanding" of the development of standards, guidelines, and quality improvements in healthcare (Zuiderent-Jerak 2009: 326). In a forthcoming book on *Situated Interventions,* Zuiderent-Jerak describes 'situated standardization' as "a conceptualization of standardization that moves away from the dichotomy of the universal and the particular" (Zuiderent-Jerak, forthcoming: 8). And as such, situated standardization is a way to overcome the tendency to predetermine the best ways of organizing *a priori* and instead let the 'solutions' be defined by an analysis of the situation at hand:

> "Situated standardization neither privileges complexity nor standardization as harbingers of good medical practice. It rather tries to empirically elucidate specific issues in care delivery based on which an assessment can be made about which aspects of the organization of care should be given space and which ones should be standardized. In this way, the 'solution' of particular standardization attempts is situated in specifically articulated issues. This makes standardization not an *a priori* solution, which would lead to a grid-ironing of medical work, nor a solution to be merely critiqued for its lack of sensitivity to complexities of prevailing work practices, which would lead to celebrating complexity while ignoring the issues at stake. Situated standardization is a located and therefore accountable attempt to address specific issues in the delivery of healthcare." (Zuiderent-Jerak, forthcoming: 12)

From this understanding of 'situated standardization', it follows that an assessment of the particular case might call for standards, flexibility, or a combination, such as

the 'timeouts' or 'action-cards' mentioned in the cases above[62]. With reference to a somewhat abstract argument of the spatial arrangements of cities, Zuiderent-Jerak highlights Paris as a 'hybrid-city' in between the "unstructured medieval city like Ahmedabad" and the "grid-iron city like New York", and he argues that "[t]he hybrid qualities of Paris […] provide an interesting metaphor for what I call situated standardization of medical practice" (Zuiderent-Jerak, forthcoming: 11). This account of standardization as situated and as something to be thought out and decided upon only after the assessment of the concrete safety problem is an important contribution to the rhetoric of old versus new paradigms in safety management and their *a priori* definitions of golden principles of organizing. Moreover, the analogy of organizational space as equally structured and unstructured, both complex and ordered, is useful and goes against the standardization approach's view of the organization as a stable system as well as against the resilience approach's concept of an ever changing, complex, and fluid organizational reality. Hence, situated standardization is an obvious solution to the problem of the dichotomy of standardization and resilience, it concerns doing a bit of both, and it is indeed much better than predetermining one golden principle.

However, this clarion call for situated standardization is not without its own drawbacks, as I will briefly seek to indicate. First, although contemporary notions of implementation are often criticized by Zuiderent-Jerak and others within the STS environment, it appears that the need for 'intervention' remains an essential precondition as indicated in the title of Zuiderent-Jeraks book *Situated Intervention*. Here, 'intervention' is not understood as presaging the introduction of predesigned

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[62] In commenting on an earlier edition of this chapter, Teun Zuiderent-Jerak suggested the 'action-card' solution of the RCA to be exactly an example of situated standardization (presentation at internal seminar, Institute of Health Policy & Management, Erasmus University, Rotterdam, June 2011)

management tools into existing practices (and hoping the latter will work in accordance with the dictates of a specific *a priori* programme), but rather as something that, in a more processual view, is formed in connection with practice. However, while the kind of intervention needed is not prescribed in advance, it is generally presumed that interventions are needed, whether to create more standardization, more flexibility, or a mix. New standards, new flexible spaces, news ways of doing things, etc., are thus presupposed as essential to enhancing quality and safety. Second, the assumption that 'an assessment can be made about which aspects of the organization of care should be given space and which ones should be standardized' entails that a dichotomy between standards and flexibility is maintained. The general idea of being able to mix standards and flexibility entails that they are essentially understood as distinct qualities or organizational spaces that can then be combined as wished (this is equally implied by the term hybrid). Take the 'timeout' solution as an example: The precondition for the success of such a solution is the possibility of determining well-defined spaces for reflection, where hunches, intuitions, improvisations, etc., are given space in between the more ordered and rule-based areas of healthcare provision. This might well be effective in some instances, say the case about misdiagnosis (from Chapter 5), where the standardized treatment programme does not have any built-in mechanisms for re-examining the initial diagnosis and where, for that reason, the inherent uncertainty and time-dependency of diagnoses is consistently undermined with potentially serious effects on patient safety. However, as I seek to show in the last part of this dissertation, this kind of thinking misses one important point that goes somewhat further; namely, that rules, order, and stability cannot be separated from the ability to act flexibly and with discretion when it is needed. The issue, then, is not only the choice between standardization and flexibility, or the optimal combination of the two. What is equally needed is a reorientation of the matter, taking into account that

flexibility and discretion are not necessarily separate from habits, rules, standards, and routines.

Let us return for a second to the factor-ten medication error to discuss, not the causes of error, but the reason that the incident was averted. Neither the standardization approach nor the resilience approach nor the 'situated standardization' approach seem to be able to address and explain the nurse's lifesaving reaction. In the root cause analysis, the issue was never discussed. Although the main 'root causes' of the incident are defined in terms of 'lack of experience', for which reason depending on experience is proclaimed to be the main dilemma of the case, it is never discussed that it is exactly the nurse's experience in handling chemotherapy that prevents the incident from having serious or even fatal consequences. The resilience perspective is equally unable to address the situation because the particular situation in question does not represent the ever-changing, complex, incomprehensible environment presupposed in this attitude to safety management. The nurse's reaction was not an improvisation based on her ability to drop her tools; it was rather based on her ability to *apply* tools; namely, the tools of routine, training, and experience in mixing chemotherapy medication for children. This point, I believe, is equally missed by the 'situated standardization' approach because this is not really a question of standardization, not even of the situated kind that leaves room for reflection. The nurse's realisation that the mixture was slightly too red was based on her accumulated experience about similar cases; it came about because of her 'intelligent habits' as Dewey would state. I will elaborate on this argument in the chapter to follow. But first a minor discussion about Charles Perrow, who is referenced as a founding father of the standardization and the resilience approach respectively, but who has been, I suggest, largely misunderstood by both approaches.

8.7 Perrow on complexity, coupling, normal accidents, and rules

Charles Perrow's *Normal Accidents: Living with High-Risk Technologies* (1984) is probably the most referenced book in safety research, and it has been used vividly by both stances on safe organizing, which I have referred to above. Based on case studies of complex high-risk organizations, Perrow essentially states that if organizations are simultaneously interactively complex and tightly coupled, they are prone to accidents. That is, if work processes are so complex that errors are not discovered – as they are not foreseeable or perhaps even incompressible for the people working in the organization – as well as so closely coupled, time-dependent, and invariant that they leave no space or possibility of recovering from error, then smaller errors are likely to interact and create systemic or 'normal' accidents.

Within the contemporary patient safety programme, *Normal Accidents* is primarily used to argue for its blame-free perspective. In the seminal *To Err is Human* (Kohn et al. 2000), Perrow's analysis is reproduced in these very general terms: "When large systems fail, it is due to multiple faults that occur together in an unanticipated interaction, creating a chain of events in which the faults grow and evolve. Their accumulation results in an accident" (Kohn et al. 2000: 52). This reproduction serves the purpose of introducing the principle of 'non-blame' in safety management, as it is said, for instance, that "[t]he complex coincidences that cause systems to fail could rarely have been foreseen by the people involved" (Kohn et al. 2000:53)[63].

[63] As Casper Bruun Jensen (2008) has noted, this description of errors as systemic is then subsequently turned into the opposite argument; namely, that they are primarily human, by way of a creative reformulation of a Perrow argument: "Perrow has estimated that, on average, 60–80 percent of accidents involve human error. There is reason to believe that this is equally true in health. An analysis of anesthesia found that human errors were involved in 82 percent of preventable incidents; the remainder involved mainly equipment failure" (Kohn et al. 2000:53).

Analogous to this, the resilience literature uses Perrow to state that accidents are "non-linear phenomena that emerge in a complex system" and "that accidents can be seen as due to an unexpected combination or aggregation of conditions or events" (Hollnagel 2006: 12). Hence, by stressing that accidents (and, it is often implicitly assumed, errors in general) are complex, interactive, often incomprehensible, and "in a very fundamental sense […] non-linear phenomena" (Hollnagel & Woods 2006: 354), it is argued that the 'new view' on safety management is 'built' on Perrow's accident theory (Sheps & Cardiff 2011: 151). Just as in *To Err is Human*, Perrow's theory of system accidents is replicated in highly generalised terms: Complexity and tight coupling are not understood as that which characterises a particular kind of organizational set-up; it is rather evoked in a general defence of the resilience perspective and the need to 'cope with complexity' by being inscribed into the story of the uncertain 'postmodern' condition: "The world in which people had to cope had gradually become more tightly coupled and less linear, in other words less easy to understand. Paradoxically, as the world had become more complex, coping had become more important" (Hollnagel 2012: 124).

What is hardly addressed in both approaches then is that Perrow speaks of a very particular organizational set-up[64] when addressing the specific and rare issue of system accidents, which he also labels normal accidents. It is not that errors are not frequent, according to Perrow, they inevitably happen all the time in organizations, but the particular instances where they accumulate to become an accident and where

[64] Perrow is not completely without blame in these misinterpretations. Although *Normal Accidents* is based on case studies and posits a situation-based approach to the analysis of systems, it also, at times, tends to paint a somewhat simplistic approach to such analyses by, for instance, placing different categories of high-risk industries within a so-called 'Interaction/Coupling Chart', which "puts interaction and coupling together in a two-variable array"(Perrow 1984: 96). Interestingly, Perrow earlier spoke critically about exactly the possibility of describing organizations or industries broadly in terms of such primary characteristics (Perrow 1972). I return to this argument later on in this section.

this accumulation could not have been foreseen because of interactive complexity or have been stopped because of tight coupling is "uncommon, even rare" (Perrow 1984: 5). And when such accidents do happen, the solution, according to Perrow, is often quite simple; reduce complexity and coupling. In *Normal Accidents*, however, Perrow addresses some of the high-risk systems where such reductions are not possible, such as the nuclear power industry and chemical plants. Here, Perrow argues:

> "We have produced designs so complicated that we cannot anticipate all the possible interactions of inevitable failures; we add safety devices that are deceived or avoided or defeated by hidden paths in the system. The systems have become more complicated because either they are dealing with more deadly substances, or we demand they function in even more hostile environments or with ever greater speed and volume." (Perrow 1984: 12)

Perrow's pessimism is therefore directed specifically at these complex high-risk systems, which will remain dangerous no matter how many safety devices we introduce – hence the description of accidents as normal; such organizations are, he argues, inevitably prone to accidents. Perrow, then, is not speaking about the increased complexity of society as a 'postmodern' condition, and he is not talking broadly about errors as systemic and incomprehensible (and hence 'non-blameable'). Rather, he argues for the consideration of safety issues from a situation-based approach. Conventional explanations of accidents, Perrow argues, "do not account for variations in the failure rate of different kinds of systems" (Perrow 1984: 63), and he continues: "What is needed is an explanation based upon system characteristics" (1984: 63). Hence, Perrow is not predetermining complexity and coupling as fundamental conditions, which imply that operators (or healthcare professionals) should not be blamed *in general* or that safety management should *in*

general be understood in terms of coping with (irreducible) complexity. Rather, he suggests that we analyse the situation under scrutiny to see if complexity and coupling are important characteristics of the organizational set-up – and if so, to reduce these organizational traits, if at all possible, to prevent inevitable failures from escalating into serious accidents.

If we evoke Perrow's argument with regard to the factor-ten medication error described earlier in this chapter, we see that, although the highly standardized cytostatic service production is not necessarily highly complex, it is indeed tightly coupled. And although the tight coupling argument might not explain the initial problem of the punctuation on the prescription being unclear, it might partly explain why the incident was not averted until the very end, despite the presence of three standardized safety steps: the countersignature on the prescription at the clinic, the approval from the dispensing chemist before the doses are mixed, as well as the approval of the second dispensing chemist after the production.

Not only did the safety procedures not work according to their prescribed purposes, the tight coupling of the system had an additional role in preventing the mixer, a chemist's assistant, reacting to her hunch that something was wrong, which would have put a stop to the incident much earlier in the process. At this point, two obstacles can be listed that both relate to the strictly coupled production-process of cytostatic agents: First, the safety procedures and steps leading up to the mixing of the preparations seemed to prevent the mixer from following her hunch; most clearly, the earlier approval from the dispensing chemist had this effect. The second obstacle concerned the physical setting; to go into and out of the mixing room, the mixer had to change clothes and, when in the mixing room, they were not allowed to open the lock to ask questions to those outside the room. A phone was installed in the room; however, there was no culture of using it to ask questions or express

doubts of any kinds. As a result, a situation was created in which the room for acting on suspicions was reduced, whereby "the operator loses the ability to correct a minor failure in a part rather than shutting down a whole unit or subsystem" (Perrow 1984: 79). It should further be noted that both of the mentioned obstacles were related to safety procedures; safety procedures in relation to the handling of medication, which had isolation and lack of communication as a result; and safety procedures to assure the correctness of the prescription process, which in this case created the illusion that everything was in order, when in fact it was not.

Based on this concrete case, it might reasonably be questioned whether new safety procedures are the most optimal solutions to the problems posed by the incident. As Perrow suggests, such new procedures might just increase the complexity and coupling, whereby new interactions of failures are made possible; as exemplified in his objection to the common reaction to fires in plants, aeroplanes, ships, etc.: "next time they will put in an extra alarm system and a fire suppressor, but who knows, that might just allow three more unexpected interactions among inevitable failures" (Perrow 1984: 4). Interestingly, Perrow's critique seems to apply equally to the second and third action plan of the RCA, where the second prescribes an extra calculation at the end of the production process and the third introduces 'action-cards' to express hunches and doubts. Although the action-card solution might somewhat increase the possibility that hunches are reacted on (at some point in the process), it will, at the same time, introduce yet another element, yet another safety procedure, in an already tightly-coupled and time-dependent process. Perrow's own solutions to problems of tight coupling, which is, however, not highly elaborated on in his book on normal accidents, is to create systems that are more forgiving, where "[o]perators have more time to take action and can take more actions" (Perrow 1984: 38); where "those at the point of disturbance must be free to interpret the situation and take corrective action" (Perrow 1984: 332); and later "they must be

able to "move about," and peek and poke into the system, try out parts, reflect on past curious events, ask questions and check with others" (Perrow 1984: 333).

At first sight, this analysis delivers a strong argument to the advocates of the resilience approach to safety management. The discussion of the distinction between tightly- and loosely-coupled systems, where loosely-coupled systems are more flexible and hence better able to react to errors, while tightly-coupled systems do not involve a lot of slack or possibilities to do things otherwise can be directly coupled to Karl Weick's organization theory (Weick 1976, 2001). However, the situation-based description of the need to create a more 'forgiving' organizational structure, where discretion and the possibility of taking action when needed, is hardly a general argument for reducing rules and introducing improvisation, randomization, or other 'non-logical activities', into safety critical work settings such as the cytostatic production process. It is, in other words, not an argument about going from standards to flexibility as the dominant organizing principle.

Here, it might be useful to turn to Perrow's earlier attempts of "distinguishing different types of organizations or situations" (1972: 36); what is often described as his contingency approach to organizations. One place to look is *Complex Organizations* (1972), where Perrow discusses common critiques of bureaucracies disclosed as a general wish to reduce rules. In what he terms as the 'social engineering or planning attack', bureaucracies "are said to be inflexible, inefficient, and, in a time of rapid change, uncreative and unresponsive" (Perrow 1972: 6). Perrow argues that a simple dichotomy is often evoked to describe different kinds of organizational set-ups, as for instance the so-called 'technological theories' that classify organizations in terms of "the kinds of tasks that are performed in them, and this is presumed to affect the structure of the organization" (Perrow 1972:

162)[65]. These theories establish that "[w]hen the tasks people perform are well understood, predictable, routine, and repetitive, a bureaucratic structure is the most efficient" (Perrow 1972: 162), and, on the other hand, "[w]here tasks are not well understood, generally because the 'raw material' that each person works on is poorly understood and possibly reactive, recalcitrant, or self-activating, the tasks are nonroutine" (Perrow 1972: 162). This argument, which immediately bears resemblance to discussions within contemporary safety management as described above, maintains a distinction between routine and non-routine (or standards and flexibility), which is, according to Perrow, not fruitful:

> "By clinging to a routine-non-routine distinction, the technological theories too often place a caricature of Weber in the former and the human relations model in the latter type of organization, and we have a replay of the old social-psychological distinction between initiating structure and consideration. What promises to be a way out of these oversimple dichotomies is in danger of becoming trapped by them." (Perrow 1972: 165)

Not only is this dichotomy 'oversimple' so that, for instance, "there could be more than one variety of routineness" (Perrow 1972: 166), it is also often false insofar that rules and discretion are in many instances highly dependent on each other. Perrow defines rules as "an invisible skein which bundles together all the technological and social aspects of organizations. As such, rules stem from past adjustments and seek to stabilize the present and future"(1972: 28). Such rules can be written down, or they can be unspoken and a matter of custom. Moreover, they are, and especially the good ones, rarely noticed.

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[65] Of such theories, Henry Mintzberg's ideas about different organizational structures are probably the most well known today within organizational studies (e.g., Mintzberg 1983).

Rules, then, can also be brought into organizations by people in them through their way of acting and thinking. Here, Perrow describes professionals as "personnel who have complex rules built into them" and elaborates by suggesting how "[t]hey bring these into the organization and are expected to act upon them without further reference to their skills" (1972: 26). While researchers "love to denounce ruleless organizations" (1972: 30), such ambitions might actually mean less skill, competence, and flexibility and more standards: "to reduce the number of rules in an organization generally means to make it more impersonal, more inflexible, more standardized" (Perrow 1972: 28). In the next chapter, I will elaborate on these arguments in an attempt to draw the contours of a situation-based and pragmatic stance on the organization of safety.

PART III

9. A Situation-based and Pragmatic Stance on Safety Management

In Chapter 3, I depicted medicine as a thoroughly practical enterprise defined by its use of clinical experience, practical judgment, and detailed description in the treatment of illness. I further argued, with the help of certain practical philosophies, that medical reasoning is a particularly, perhaps even an exemplary, practical enterprise, where "agents must always look at what is appropriate in each case as it happens" (Aristotle 2000: 25, 1104a). However, this picture is hardly unquestioned and self-evident today as it was at the beginning of the 20th century, when Dewey used the medical example to illustrate pragmatic methods, or even in 1988, when Jonsen and Toulmin turned to medicine in their defence of casuistry. Instead, it can be argued that "in most accounts of medicine, *phronesis* or clinical judgment is set aside in favour of a binary split between knowledge of the hard, reliable stuff and the mushy but unavoidable ineffabilities" (Montgomery 2005: 34). Interestingly, the

dichotomy described by Montgomery is remarkably close to the split that characterises traditional ethical theory, and which all of the above-mentioned practical philosophers have fundamentally contested by the use of medicine as an exemplary case of a kind of reasoning that transgresses or dissolves this dichotomy: By very clearly showing how medicine, as an archetype of practical reasoning, is neither an instance of direct deduction from principles of biomedical science nor a subjective taste or whim, they use the medical example to fight dogmatism, 'the tyranny of principles' (Jonsen & Toulmin 1988), and 'the quest for certainty' (Dewey 1929). Given this background, it has been argued that the dominant paradigm of evidence-based medicine, as well as the massive amount of managerial reform processes that endorse standardization and rule-based solutions, are not "used to thinking of different kinds of rationality" (Montgomery 2005: 34). This has led to an increasing disregard and devaluation of practical rationality as "an interpretive, making-sense-of-things way of knowing" (Montgomery 2005: 34), which "takes account of context, unpredicted but potentially significant variables, and, especially, the process of change over time" (Montgomery 2005: 34).

Montgomery's critique of recent accounts of medical rationality is anything but irrelevant to current patient safety management efforts, as the dichotomy between 'the hard and reliable' on the one hand, and 'the mushy' stuff on the other, is reproduced in the available alternative stances on safety management.

9.1 The dichotomizing rhetoric of alternative approaches

In this final part of the thesis, the inquiry's last step, I draw the contours of an alternative to the dominant views on safety management in healthcare. However, I am not the first to suggest such alternatives; a number of challenges to the dominant paradigm of safety management have been suggested by a small but

growing number of researchers, primarily within safety research and Science and Technology Studies. In addition, critical voices are increasingly growing within the safety movement. The alternative approaches, which aim to "question dominant ways of understanding safety" (Mesman 2009: 1705), form an important step toward challenging, questioning, or correcting the dominant regime; however, they seem to predominantly focus on *one* primary feature of the management programme on the basis of which, then, an alternative is offered to contrast that of the programme. In so doing, they reproduce the dichotomies between 'hard', 'rational', 'linear', 'visible', 'reliable' stuff on the one hand, and the 'mushy', 'irrational', 'complex', 'invisible', 'variable' stuff on the other.

The most widespread alternative perspective on safety, which I introduced in Chapter 8, is the resilience approach, founded on a critique of the standardization tendencies inherent in present safety management efforts. Determined within an overall frame of resilience, it is increasingly common to contrast standardization with flexibility, discretion, and innovation via a strong rhetoric about breaking with the old paradigm to introduce a new one. Another alternative is based on the safety programme's focus on, and ideal of, uniformity and argues on this basis for a more complex and multiple understanding of safety. Such studies seek to show, for instance, that in different contexts safety can be different things, or, with an STS line of argument, they are based on multiple ontologies (Zuiderent-Jerak et al. 2009). Another strand argues that the real focus should be shifted from systems to humans. An example is the anthology *Risky Work Environments: Reappraising Human Work Within Fallible Systems* (Owen et al. 2009), where several authors investigate the role of humans in preventing failure and enhancing safety and, hence, argue for "adopting a human-centered focus in contrast to a techno-centered one" (Owen et al. 2009: 197). Jessica Mesman's approach, which is closely connected to the renewed emphasis on the importance of humans in safety work, is also somewhat

prone to dichotomizing, rhetorically at least. In calling for a move away from the present safety paradigm as a 'deficiency model' of patient safety (Mesman 2008), Mesman argues that we need to overcome the tendency to only address errors, lack of safety, and 'causes of weaknesses' and instead focus on 'causes of strengths' (Mesman 2009: 1705); we should define patient safety "on the basis of *what it is*, instead of what it is not" (2009: 1705). This entails, Mesman argues, that we turn our focus from formalised and visible safety processes to the more informal, invisible, and 'hidden' areas of healthcare work (Mesman 2008, 2009, 2011)[66].

Although the present study is inspired and intrigued by each of these alternative strategies, some more than others, it seeks to go beyond the general rhetoric of dichotomizing. Because there is, although it might not be the intention, a danger that the articulation of these dichotomies may insinuate that if we change focus from one part of the dichotomy to the other, that is, from standards to resilience, from uniformity to complexity, from systems to humans, from error to strength, or from formal to informal, safety is within reach. However, by maintaining this overall logic, it seems that the general line of argumentation in present safety research and practice is not so much fundamentally challenged as simply inverted. In this way, we risk discounting practical and situation-based reasoning, which has dominated the understanding of medical knowledge until recently. On the one hand, the situated and circumstantial character of medical and safety knowledge is in danger of being discounted because of the predetermined principles, normativities or preferred focus areas of the available alternatives. Another and perhaps more serious threat is the possible discredit of the importance of practical human inquiry in safety issues.

[66]As I will argue later, Mesman's studies can, in spite of the rhetoric of her general argument, also be taken as an alternative source to current safety management that goes beyond the tendency of dichotomizing.

This tend can be detected in the most radical versions of the standardization and resilience approaches to safety management. Of these, the standardization approach is defined by its principle- and evidence-based attitude to rationality, where organizational reality is understood through linear causality. In this way, it discounts medical reasoning as contextual, interpretive, and provisional. In resilience literature, rationality and the prospects of structured human inquiry and practical reasoning is largely discounted either through, in its most radical form, Weick's suggestion to "drop the tools of rationality to gain access to lightness in the form of intuitions, feelings, stories, improvisation [...]" (Weick 2007: 15); or through the argument that in complex, changing, and unpredictable environments, individuals' situated judgments are often, although they might make sense in the moment, bound to fail; an argument also referred to as the "local rationality principle" (Dekker 2006: 13) [67]

Inspired by the Deweyan quest to go beyond the temptation of dichotomizing, I turn to practical reasoning and pragmatic method as a different lens by which to approach the situation at hand. With a pragmatic stance it is equally problematic to believe that safety is obtained by substituting a principle of blame with a principle of 'non-blame', as it is to promote, for instance, a principle of complexity as a substitute for one of uniformity. But before I go into more detail about this pragmatic attitude to safe organizing, a few words must be said about the kind of 'alternative' I provide, that is, the status of the 'different lens' offered.

[67] It is important to note that some of the alternatives I have mentioned are specifically promoting the importance of human inquiry for patient safety, and speaking of the importance of humans skill, competence, and reasoning for safe organizing (Mesman 2008, 2009, 2011; Owen et al. 2009).

9.2 Another kind of 'alternative'

By rearticulating some of the already mentioned arguments about practical and pragmatic reasoning, and by reference to a few contemporary authors who work along the same lines in their approaches to safety issues, I will make a case for a situation-based and pragmatic stance on safe organizing. Conceiving this dissertation as an inquiry, or in Dewey's words "a progressive determination of a problem and its possible solutions" (1938: 110), this pragmatic stance suggests "a *possible* relevant solution" (1938: 109, original emphasis) to the problem posed by present patient safety management. To Dewey, any solution presents itself as a suggestion, which, in the earlier steps of an inquiry, are likely to "spring up, flash upon us, occur to us" (1938: 110) but which are then, when examined and reflected upon, turned into 'ideas': "The suggestion becomes an idea when it is examined with reference to its functional fitness; its capacity as a means of resolving a given situation" (Dewey 1938: 110). An idea, Dewey claims, "is first of all an anticipation of something that may happen; it marks a possibility" (Dewey 1938: 113).

The presented 'idea' of a situation-based and pragmatic stance on patient safety should be understood in this Deweyan fashion; that is, first, as a suggestion that marks a possibility, and, second, as a 'solution' to be judged according to is "functional fitness". As such the idea must be judged with view to its ability to "instigate and direct further operations of observation" and to work as "proposals and plans for acting upon existing conditions to bring new facts to light and to organize all the selected facts into a coherent whole" (Dewey 1938: 112-113). Recalling Chapter 4's discussion on common (mis)understandings of the pragmatic method's relation to usefulness, this is *not* a solution in the way that both of the dominant approaches to the question of safety management – the standardization and the resilience approaches – present themselves: it is not a new paradigm, or a

'new way', to replace earlier approaches to safety management and it is not about introducing a new golden principle that can be utilized in every safety critical situation. Finally, it is not to argue that if we just approach safety management from a situation-based perspective, we are well on our way to failsafe or at least ultra-safe healthcare institutions. Rather, the presented 'alternative' should be understood in its ability to cast light on the problem under scrutiny. To Dewey, "a problem well-put is half solved" and he goes on: "to find out *what* the problem and problems which a problematic situation presents to be inquired into, is to be well along in inquiry" (Dewey 1938: 108). From this perspective, the pragmatic stance on safety management should be perceived from its ability to point out the problems of the current situation: It should be perceived as a way to enlighten and 'settle' the present situation, rather than as a new management tool for patient safety. As such, its effects should be understood as formative rather than immediately useful and directly 'implementable'.

9.3 On emergency teams and the neglect of existing practices

To accentuate and come a bit closer to the grain of the pragmatic and situation-based attitude to patient safety, one last relevant case from my fieldwork should be introduced. At the university hospital a new safety intervention in the shape of 'medical emergency teams' had been introduced with the goal of identifying and treating suddenly worsening and deteriorating patients in general wards. The introduction of emergency teams is an international trend, which is gradually becoming standard in Danish hospitals[68]. The teams are centralised units consisting

[68] The introduction emergency teams, which are often described by terminologies such as Medical Emergency Teams (MAT) or Rapid Response Teams (RRT), was part of the campaign "The Operation Life", which was launched in 2007 in cooperation between The Danish Society for Patient Safety and Tryg Fonden. During the campaign, the number of hospitals with

of emergency physicians and nurses, and their goal is to ensure safe, timely, professional, and standardized emergency care to patients who are, for instance, suffering from unexpected organ failure or cardiac arrest. However, more than once during my fieldwork, the functioning of these teams was brought up during discussions about critical incidents – for example during root cause analysis sessions. From these discussions, it became obvious that the introduction and use of the emergency teams did not go as smoothly as expected. To demonstrate this point, we need to return to Chapter 7's case concerning the misdiagnosed pregnant woman. As the woman went into cardiac arrest, and the emergency team was to be called, a long list of things started to go wrong. First, and for reasons not altogether clear, the emergency team was not called immediately when the patient stopped breathing. Rather, a phone call to an attending physician was made before the call to the team. Second, considerable confusion arose about who was in charge of the resuscitation efforts until the team arrived. One of the RCA participants described the situation as chaotic and as "a headless operation where no one and everyone were taking charge". Third, when the team arrived, the ward personnel were largely disorganized and confused about their roles and responsibilities, right down to simple questions such as whether they were supposed to stay in the room or not. Another issue concerned the documentation of the episode; as a nurse mentioned: "In the old days, a cardiac arrest would immediately compel someone to grab a pen and start documenting. Now we all rush out of the room when the emergency team arrives". Clearly, then, the ward in question had developed a considerable number of established rules, procedures, and routines (spoken as well as unspoken) for emergency situations before the introduction of cardiac arrest teams was effected. Accordingly, by introducing emergency teams, new guidelines had been introduced,

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emergency teams increased from two in 2007 to more than fifteen by the end of 2008 (Danish Society for Patient Safety 2008).

but the implicit annulment of the 'old ways' had not been taken into account and neither had the fact that such routines are developed over a long period of time (often through trial and error) and that it might take a while to re-establish responsibility structures that function as effectively as the old ones.

Based on the presented empirical cases of this dissertation, a rough pattern of similar concerns can be addressed: The syringe case, where the valuable safety routine of checking the label on the medication was jeopardized by the introduction of PO syringes; the extra-uterine pregnancy, where important intuitions and intelligent habits were overruled; the factor-ten medication error, which was only averted because of an experienced nurse's great skill and routine in handling chemotherapy for children; and, finally, the abovementioned emergency team case, where gradually developed safety routines, rules, and habits were overruled by a new safety intervention. Each case points to skills, routines, intelligent habits, existing practices, and accumulated experiences as significant but underdetermined parts of the clinical situation and of giving appropriate and safe care and treatment to patients.

I now present three contemporary authors who, in each their own way, have addressed issues of safety management from a situation-based and pragmatic stance and with regard to the importance of already existing routines, rules, and practices as a precondition for giving way to flexibility and discretion when needed. These are authors, then, that use quite different conceptualizations to introduce strikingly analogous arguments.

9.4 Stephen Holmes on rules and protocols in emergency responses

In an article on national security emergencies, Stephen Holmes attends to emergency-room personnel in hospitals and their strict adherence to rules and

protocols in emergency situations. Holmes argues that, although the personnel do "understand the need for immediate and unhesitating action" (Holmes 2009: 302), they nonetheless "routinely consume precious time to follow protocols drilled into them and practiced in advance" (2009: 302). This is done for safety reasons, he argues; it is done to provide them with "a kind of artificial "cool head" ", which can "minimize the risk of making fatal-but-avoidable mistakes under the psychologically flustering pressures of the moment" (2009: 302). Holmes sums up his argument thus:

> "[E]mergency-response personnel follow pre-established protocols precisely *because* they understand the dangers they face. Only those who fail to appreciate the gravity of a looming threat would advocate a wholesale dispensing with rules that professionals have developed over time to reduce the error rate of rapid-fire choices made as crises unfold." (2009: 303)

Importantly, Holmes's argument does not apply to those rules that prevent one from responding appropriately to the requirements of the situation. What Holmes refers to, then, is rather the so-called 'auxiliary precautions' that have stood the test of time and that it would be unwise and even unsafe to circumvent. It is the:

> "rules, protocols, practices, and institutions […] that have survived through trial and error to help them [the emergency responders] of the complexity of their threat environment, to prevent their over-concentration on a single salient danger, to alert them to unintended complications triggered by our own ad hoc remedial interventions, and to bring their potentially fatal mistakes to light before it becomes too late to correct them." (2009: 308)

Holmes's argument is fundamentally different from the typical variation argument of the standardization approach for a number of reasons. First, the defending of rules is not driven by a wish to reduce variation and assure the same treatment for all; rather, it is a question of permitting "emergency workers, with no time to think, to coordinate their responses swiftly and effectively" (Holmes 2009: 310-311). Therefore, the rules and protocols Holmes advocates are of a particular kind; these protocols are "practiced in advance", they are "drilled into" the personnel and they are "developed over time" and "through trial and error". Interestingly, Holmes argues that such situated and practice-based rules might well be non-negotiable, without being abstracted, universal, or dogmatic. An example, he states, is obligatory hand washing in the emergency room. This particular rule is practical, based on empirical observations, and, as such, the "rule is rigid but nevertheless pragmatic, neither dogmatic nor moralistic" (2009: 309). Holmes concludes: "when crafted over time by emergency responders who have learned from their mistakes, non-negotiable rules can sometimes prove more effective, pragmatic, and adaptive than unregulated and unmonitored discretion" (2009: 311). In this way, Holmes's argument is not only at odds with the typical standardization approach, but also, and perhaps primarily, with the idea that discretion and flexibility, in and of themselves, can function as safeguards in times of unpredictability, insecurity, and change. From Holmes's perspective, rules, habits, and routines are necessary, especially in unsettled situations.

> "Rules to be followed "in case of emergency" reflect a realistic understanding that a crew of human responders, with no script to follow, often *fail* to adapt themselves with desirable rapidity and coordination to the demands of a dangerous and confusing situation." (Holmes 2009: 308)

This line of reasoning is the exact opposite of Weick's discussion on the Mann Gulch disaster (as described in Chapter 8), where he argues against relying on routine and 'doing things by the book' and highlights instead the need for 'dropping one's tools' (of rationality, earlier experiences, rules, etc.) and putting one's faith in complete improvisation instead.

Holmes is well aware that not all emergencies are alike and that only some emergency situations are best managed by non-negotiable rules, while others should be dealt with through the combination of rules and discretion that the particular situation calls for. He therefore stresses that the emergency room analogy and the general argument that "in the emergency room, urgency is the principal reason for avoiding discretion and relying on rules" (Holmes 2009: 307) should be understood as an 'antidote' to the analogies and metaphors of the "advocates of unbounded executive discretion" (2009: 311).

A number of significant arguments should be taken from Holmes's paper. On the most general note, the paper is an acknowledgement that rules and well-established routines are not antithetical to flexible and prompt action in complex and insecure situations (see also Du Gay 2000). The fact that Holmes speaks of emergency care situations characterised by uncertainty, change, and insecurity is particularly interesting, as the usual claim in much organization studies literature and as utilised by the resilience approach is that, while bureaucratic structures are well suited in stable and predictable settings, rules and regulations must be discounted in times of insecurity, complexity, and rapid change. Following Holmes's argument, it is, however, precisely in such situations that we need to draw on rules, skills, training, routines, and habits, rather than a reliance on 'unbounded discretion' or 'ad hoc interventions' that might increase error-rates, slow us down, and restrict our focus. Here, it is salient to notice that it is specific kinds of rules of which Holmes is

speaking: it is, as described, those rules that have been developed over time through 'trial and error' and through practice. It is the rules that are 'drilled into' the personnel, and those that are empirical, pragmatic, and situation-based.

9.5 John Law on relative stability in safety critical systems

In sociologist and leading STS scholar John Law's paper "Ladbroke Grove: Or How to Think of Failing Systems" (2000) another version of a situation-based view on safety can be found. The paper is a thorough description of a UK train crash that killed thirty-one people and injured more than five hundred, as well as a discussion of the inquiry that followed. Law finds the explanation strategies used in the aftermath of the accident insufficient, and he therefore presents us with a counterview involving the "advantages of practicing imperfection. Of working in a way that is fluid" (Law 2000: 11). By foregrounding imperfection and fluidity, Law appears, on first view, close to a resilience approach to safety management, like that of Karl Weick. However, when taking a closer look at the meaning of 'working in a way that is fluid', a more subtle understanding of the relations between routines, flexibility, and safety practices appears. Law presents some concrete examples, which include situations where formal rules and actual practices clash; for instance, he describes how it is 'generally accepted' (Law 2000: 13) that a so-called SPAD (a signal to indicate that a train has passed a danger sign) does not mean that every train is immediately put on hold as the formal rule dictates. Instead, the signalmen wait for a little while to ensure that the signal should indeed be reacted on. The reason being that most SPADs are corrected immediately or turn out to be of a technical character, and only very few are actual runaway trains. If all SPADs were reacted on instantaneously, it would result in injuries caused by emergency braking as well as disruption and delays. Law concludes:

> "If the prevailing practice of the signalmen across the network was in fact to 'wait and see', then this was a system imperfection which actually helped to keep the wheels turning almost all of the time. Or, more generally, fluidity and system imperfection are necessary if systems are to run at all. They are not simply chronic failures. They are built into the hidden logic of the systems." (Law 2000: 14-15)

Here, fluidity is referring to "the prevailing practice" of the signalmen. Later in the text, Law describes these practices as "the practices routinely needed for working on and within partially coherent systems" (Law 2000: 14). In this way, Law realizes the importance of prevailing practices, informal routines, types of stability, and whatever may "have proved workable in the past" for ensuring fluidity and flexibility:

> "The argument is that change is not a good in and of itself. There are also reasons for relative stability. And, in particular, there are reasons for relative stability in safety-critical contexts where routines have proved workable in the past. And one of those reasons is that fluid practices which tolerate incoherences – the incoherences necessary in a working system – have evolved which stand the test of time. To put it simply: bureaucracies don't deal with change, but, contrary to the popular view, they may be flexible and tolerant of error if the demands placed upon them are relatively stable." (Law 2000: 15)

Consequently, the analysis of the Ladbroke Grove disaster points to the possibility that flexibility and slack are not necessarily in opposition to what Law determines as 'relative stability'. And, as such, stability, routine, and bureaucracy are not necessarily hindrances to flexible organizing, but rather, in some cases, preconditions for it. Moreover, Law's notion that "change is not good in and of itself" suggests that a new intervention is not always the best solution to a safety problem. Instead, we

should look closely to the already established practices, routines, and accumulated experiences, as they might exist for good reasons[69].

John Law's argument is important not only because it highlights the significance of relative stability and established routines, but also because it is a brave argument insofar as he announces that although a serious accident has happened, it is not necessarily fruitful to rush out and try to 'solve' the problem. Systems are not perfect, Law argues, and we should not necessarily wish for them to be perfect – because such a wish is likely to make things worse. As such, "the search for system perfection is not only impossible but, more strongly, it may be self-defeating" (Law 2000: 14). This argument supports Perrow's line of reasoning in *Normal Accident*. If one general recommendation can be taken from this book, it is to "stop trying to fix the systems in ways that only make them riskier" (Perrow 1984: 4). Moreover, Law's argument about system imperfection is also an acknowledgement that failure to, for instance, follow guidelines and standards are not necessarily a question of 'sloppiness', and he goes on: "though it is hard to make this argument when people have been killed or injured, it is important to say, and to say loudly, that system imperfection is not necessarily a curse" (Law 2000: 14). Our standard reaction to disaster, however, is to seek out such system imperfections as part of the problem:

> "After a disaster everyone is troubled and defensive. When they are asked: was everything done by the book? did you have control over everything in the way you were supposed to? they respond defensively.

[69] As hinted to, it should be noted that Law is somewhat torn between the situation-based analysis of the Ladbroke Grove disaster and more normative and abstract notions of fluidity and unruliness, as well as a celebration of the imperfect in quotes such as: "system imperfection is not only chronic but also, and more strongly, *necessary* to the effective functioning of systems" [original emphasis] (Law 2000: 14). By predetermining imperfection and fluidity as universal necessities and as advantageous to the system, Law risks ending up close to Weick's rather canonical identification of flexibility as *the* organizing principle.

> This means that partial (in)coherences are downplayed, or treated as errors. But this also loses or marginalises the practices routinely needed for working on and within partially coherent systems. Indeed, it renders them illegitimate. Makes them look sloppy. Dangerously fluid. The issue, then, is how to render legitimate the practices of multiple, partial ordering." (Law 2000: 14)

In this way, Law draws attention to the fact that practices and routines that are developed over time to make the (imperfect) system function, and even function well, might easily be rendered illegitimate when errors or accidents occur. This is an argument close to Jessica Mesman's focus on strengths in safety issues to which I will now turn.

9.6 Jessica Mesman on acts of 'exnovation'

In spite of the aforementioned dichotomizing rhetoric, Jessica Mesman's work on patient safety delivers an important argument for a more situation-based stance to safety management, with particular focus on the routines and competences vital for safety in healthcare. In her work, Mesman asks not why error happens, but why they do not happen more often; and in this way, she turns our attention toward the already established practices and their potential safety advantages (Mesman 2008, 2009, 2011). With this, she argues that the one-sided focus on causes and prevention of critical incidents and mishaps of contemporary safety management risks ignoring the importance of identifying the strengths of sound and safe practices.

Mesman's book *Uncertainty in Medical Innovation: Experienced Pioneers in Neonatal Care* (2008) is based on ethnographic studies conducted in a neonatal care clinic in a Dutch hospital. Here, she highlights how a complex coordination of competences, skills, experiences, routines, technology, and so forth, is needed to keep the

treatment process going. In this coordination process, there is no clear dividing line between "the known and the unknown, the risk and responsibility, and the collective and the individual" (Mesman 2008: 188). Moreover, this entails that progress in treatment procedures and technological advantages can "not be equalled with a structural reduction of problems and uncertainties" (Mesman 2008: 192). Mesman uses the concept of 'exnovation' to foreground the resources, competences, and skills of clinicians, which, although often unarticulated, constitute an essential part of the organization of safety in healthcare[70]:

> "Exnovation pays attention to the mundane, to the implicit local routines, to what is already in place […]. More than innovation, exnovation does justice to the creativity and experience of the clinicians, in their effort to assert themselves in the particular dynamic of the practice they are involved in." (Mesman 2011: 76)

The difference between exnovation and innovation in this quote seems to capture part of the difference between a more situation-based approach and the resilience and flexibility approach to safety represented by Karl Weick amongst others. According to Mesman, safety is not only about innovation and improvisation, but also about focusing specifically on the strengths of the current ways of organizing, of the already established practices and routines, and letting this focus suggest future ways forward[71]. Such exercises will often draw attention to the routines, skills, and competences of the clinicians as a precondition for creativity and resilience.

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[70] Jessica Mesman was inspired to use the concept exnovation by R. Wilde's "Innovating Innovation: A Contribution to the Philosophy of the Future", keynote at *Policy Agendas for Sustainable Technological Innovation*. London, December 1, 2000.

[71] It should be noted that although Mesman acknowledges a difference between innovation and exnovation in terms of the latter's respect for and attention to existing practices she also tends to reproduce some of the 'improvement' optimism of the innovation agenda, stating, for instance, that "exnovation has the explicit aim to improve practices. In this objective it resembles practices of innovation" (Mesman 2011:76).

Furthermore, it will draw attention to the less transparent parts of healthcare, that is, to the importance of the mundane, implicit local routines, invisible work, hidden competences, and the strengths of practices. By doing this, the limits of formal regulations and safety systems become obvious:

> "[A]n exnovation of hidden competences reveals not only the complexities of treatment trajectories and the resourcefulness of the actors involved, but also the limited power of medical technology and formal protocols and regulations to ensure the continuity of medical intervention […]." (Mesman 2008: 6)

As such, and in line with the argument of this dissertation, a pragmatic and situated stance on the clinical situation implicitly points to some of the weaknesses of present safety management efforts.

9.7 A pragmatic stance on safe organizing: Some practical advice

Holmes's suggestion that existing routines, rules, and procedures that have stood the test of time might be indispensable in emergency situations, Law's example of the prevailing practices of the signalmen and the necessity of accepting system imperfections, and Mesman's suggestion to look to exnovation and sources of strengths when organizing for and seeking to understand safety are all, I suggest, pointing towards a pragmatic and situation-based perspective on safe organizing. Taken together with the previously presented representatives of practical and pragmatic reasoning, as well as the empirical cases analysed in this dissertation, a number of concluding remarks about the consequences of such a stance on safe organizing can be made. In what follows, I summarize such remarks in three axioms:

1) Take point of departure in the clinical situation

Practising safety is part of practising medicine. It is a practical and context-dependent enterprise that is not separable from the clinical situation as such. Hence, safety knowledge is circumstantial just like medical knowledge; it is fallible, time-dependent, and situated. Most often, safety is not reflected upon as a separate trait of the situation; it is rather an implicit part of practising medicine. However, situations arise when it becomes necessary to address safety issues more directly as well as to decide what is safe and unsafe in the situation at hand and act accordingly. Here, employment of practical reasoning allows general rules, procedures, earlier experiences, and other kinds of knowledge to be applied with regard to the specificities of the situation. However, in being adapted to the unique situation, this kind of reasoning is not necessarily directly applicable to other situations or settings. Moreover, because of the timeliness and fallibility of medical knowledge, it might be that the 'safe solutions' reached by competent reasoning will later turn out to be mistaken (Paget 1988). From the situation-based perspective, any standard, checklist, guideline, or procedure should be understood as a proposition "adapted to the exigencies of particular cases" (Dewey 1916: 171). Or as Jessica Mesman explains:

> "Workable rules are *codified experiences*. Guidelines can only offer a hold when they are integrally linked to the practice […]. This implies that guidelines should leave room for adjustments based on experiences in practice." (Mesman 2008: 193-194)

Needless to say, this advice goes for safety interventions of all kinds as well; we need to ask ourselves whether they make sense in the situation. This is not to say that a situation-based approach must discount all of the important empirical findings of safety research. However, it must treat it as exactly that, empirical

findings that need to be tested as to their fitness and usefulness in particular situations. Hence, being situation-based does not exclude 'transmitted learning' in some form; safety efforts can easily be 'directed by' other's experiences and best practices – it might even, as Holmes has argued, consist of non-negotiable rules about, for instance, hand hygiene, and still be empirically based rather than abstract or dogmatic[72]. But just because reporting systems, root cause analyses, or other safety technologies proved useful in other industries, other countries, or other healthcare sectors, we cannot automatically presume that they are useful in a particular hospital, a specific ward, or in relation to the concrete situation at hand. As such, safety procedures should always be treated as 'measures to try'; they are, to recall Dewey's argument about the physician's use of procedures, "standpoints from which to carry on investigation" (Dewey 1916: 171). In line with this argument, Mesman describes how treatment processes consist of a constant evaluation of knowledge, guidelines, practices, and so on, according to their concrete usefulness: "Time and time again, the value of the available knowledge has to be weighed, or it has to be decided which guidelines apply or which perspective is most valuable" (Mesman 2008: 188). As a consequence of this, procedures that are not useful must be discounted; or, in Dewey's words, if they come between you and the situation "they are worse than useless" (1916: 172).

Taking point of departure in the situation, and acknowledging safety knowledge as situated, will also help us avoid one of the general tendencies of contemporary safety management: The predisposition towards dichotomizing based on simplistic

[72] This argument relates to the casuistic understanding of learning across cases; here, the ideal of being case-based does not exclude making conclusions with a more general character. Rather, the focus on paradigmatic cases and generalised principles in casuistry (used as norms not as universal rules) point to the possibility of generalising about cases without losing touch with the specifics of the particular case.

and generalised models of organizational reality. Importantly, then, to convey a situation-based or pragmatic approach to safe organizing is not only to state the epistemological limitations of situated and time-dependent safety knowledge, but also, in a more positive sense, to demonstrate a genuine and thorough interest in that which characterises the particular situation before deciding on safety measures. As described in the beginning of this chapter, practical reasoning has traditionally been seen as a way to overcome the tendency to dichotomize. To the practical philosophers evoked throughout this dissertation, the main enemy was traditional ethics, with its sharp division between those arguments that are principle-based and those based on subjective taste; in Perrow's *Complex Organizations*, he highlights the structure/actor, routine/non-routine, and rules/non-rules dichotomies of organization theory. Similar distinctions are, again, duplicated in contemporary safety policy and literature through divisions between standardization/flexibility, simplicity/complexity, system/human, non-blame/ blame, and so on. Certain attempts to overcome this way of dichotomizing, for instance by dividing organizational reality into bits that are either in need of standards or in need of flexibility, are not useful either, because it essentially preserves the "tension between developing a robust system, marked by rules, procedures and guidelines, versus the need for performance variability to get the work done" (Sheps & Cardiff 2011: 152). In the concrete situation, however, such tensions do not necessarily exist, and it might well be the most robust system that turns out to be the most flexible.

In Mesman's work on the treatment processes in neonatal care, she describes how taking point of departure in the particular clinical situation means being in an 'in-between zone' or opening up 'the interface between' generally established dichotomies, such as: "the general and the particular; actors and technologies; formal protocols and the swirl of treatment trajectories; public and local accountability; facts and values; expectations and experiences" (2008: 188). These

are useful suggestions. It is, however, important to stress here that my aim is not only to highlight the complexity, multiplicity, or contingency of safety issues, but rather to assert that the 'mess' cannot be ordered in advance and without a view to the particular situation. When we approach critical incidents, for instance, we cannot determine *beforehand* whether responsibility or blame should be appointed. Or whether the incident was caused by human slips, complex interactions of systemic failures, incompetence, or other causes. Or whether the organizational set-up was inappropriate (for instance highly coupled or complex). Or whether the situation was routine or it was hectic and uncertain, and so on. Determining these matters and determining what is to be done (if anything) is a question of situation-based and pragmatic reasoning.

2) Be cautious about ideals of risk-elimination through system improvements

In John Law's paper on the Ladbroke Grove accident, he argues how the common reaction to errors and accidents is to introduce change with the intention of creating more perfect systems. In this process, he argues, there is a risk that what is already in place and functioning is ignored or, even worse, made illegitimate. He therefore concludes: "change is not a good in and of itself" (Law 2000: 15). Other voices evoked throughout this dissertation have uttered similar concerns; most noticeably, Perrow warns against the idea that safety problems can be solved by adding new procedures or safety innovations, which might increase coupling and complexity of organization (Perrow 1984). Mesman argues that "good intentions and a gamut of data or guidelines can never really preclude problems from occurring" (Mesman 2008: 188). And, as several of the empirical cases have shown, there is a good chance that when we try to solve certain problems or diminish one type of risk, other problems and risks are likely to appear. In its most general form, Dewey supports this argument with the statement that "as special problems are resolved,

new ones tend to emerge. There is no such thing as a final settlement, because every settlement introduces the conditions of some degree of a new unsettling" (Dewey 1938: 35). This is a general argument that is linked to the situated and fallible status of knowledge claims, and being that medical knowledge, as we have seen, is particularly fallible and uncertain because it involves individual patients, the idea that we can create failsafe or ultra-safe healthcare institutions through a highly interventionist attitude is potentially problematic.

At this point, this dissertation's earlier discussions on practical reasoning and the subtle relationship between individual judgments in specific cases and the rules, propositions, and earlier experiences that somehow guide such judgments should be evoked. In Jonsen and Toulmin's account of casuistry, they dispute the dominant tendency to introduce new rules in cases of errors or misconduct and instead argue for the better use of the rules we already have:

> "[W]hat is called for [...] is not multiplication of further rules the inflexible application of which will only end creating still more hard cases. Surely the issue is rather one for the exercise of wisdom, discretion, and discernment in enforcing the rules we already have. In morality, as in law and public administration, the assumption that all practical decisions need to rest on a sufficiently clear and general system of invariable rules or principles has, from a theoretical point of view, a certain attractiveness. But in the actual business of dealing with particular real-life cases and situations, such rules and principles can never take us more than part of the way. The real-life application of moral, legal, and administrative rules calls always for the exercise of human perceptiveness and discernment – what has traditionally been referred to as "equity" – and the more problematic the situations become, the greater is the need for such discernment." (Jonsen & Toulmin 1988: 9)

This quote can be read as a critical comment to both the standardization and resilience paradigms; to the patient safety programme's search for closing holes in the system via the introduction of new standards; but also to Weick's 'non-logical' position, where he dismisses old ways, rules, and experiences in order to improvise and innovate when faced with safety problems. Johnson and Toulmin's argument is different from this position: When faced with problems, the best solution is not necessarily to radically change what we do or to introduce new rules, procedures, or innovations. Sometimes our already established rules and practices are adequate; that is if we use discretion in our interpretation of them and do not treat them as universal or unchangeable. This argument is supported by Dewey, who, as quoted earlier, maintains that "the choice is not between throwing away rules previously developed and sticking obstinately by them. The intelligent alternative is to revise, adapt, expand and alter them" (Dewey 1922: 239-240).

The idea then, from a pragmatic stance, is that instead of immediately introducing new rules, standards, or innovations whenever we experience an error, a critical incident, or an accident, we should start by looking to the rules, procedures, and practices we already have, as well as to our ability to act with the flexibility and discretion needed to enforce these rules. From this perspective, we might, when approaching emergency procedures, look to the already existing practices at ward level before introducing centralised emergency teams, or we might, when approaching problems of incompetence, consider the already existing informal structures of co-collegial error-management. Jessica Mesman's use of the term 'exnovation' expresses such an attitude, which marks a difference to current managerial efforts' excessive focus on innovation and intervention by which the more invisible structures of well-functioning routines risk being disregarded. She argues: "where innovation can be defined as 'to make something new', exnovation

pays attention to what is already in place and challenges the dominant trend to discard existing practices" (Mesman 2008: 5).

This attitude also implies that in some instances, the obvious consequence of critical incidents or medical error might be to do nothing (in terms of interventions at least). However, as Law indicates in his analysis of the Ladbroke Grove disaster, this is a difficult argument to maintain – especially if people are hurt or even killed. Doing nothing in terms of formal interventions, action plans, or system improvements is not, however, the same as ignoring the incident. Instead, it might give rise to the possibility that processes of incident analysis (such as root cause analysis) can be judged not only by the quality and degree of implementation of action plans, but also in their effects as learning experiences for the people involved.

Moreover, it should be noted that the advice to think twice before introducing new system improvements is not only advice with possible effects on patient safety and quality; it equally takes into account the massive amount of resources that are used to introduce formal measures of different kinds in healthcare. Here, it is indeed interesting to recall Rosenthal's argument from the mid-nineties about the use of formal measures as a last resort:

> "As in all social institutions and organizations, formal rules and procedures must exist as a last resort, as a declaration of possible use in extreme situations. But to use informal approaches for problems is more humane and less costly. To use informal approaches effectively, however, requires skill." (Rosenthal 1995: 107)

Today, a less interventionist position is hardly an easy position to hold, and it does not make it any easier that patient safety representatives, quality coordinators and risk managers have become part of a distinct profession within healthcare. For a profession eager to maintain its position and worth by 'innovating' healthcare,

advice such as 'to do nothing' or to 'use the rules already in place with more discretion' are, for obvious reasons, not preferable compared with a more interventionist position.

3) Preserve the importance of existing practices, habits, and experiences

In present safety management efforts, training and experience are deemed 'weak safety solutions' because they are informed by a reliance on human variability and hence fallibility. Likewise, in recent calls for resilience, existing practices and routines are considered useless and potentially damaging because of their inability to deal with uncertainty, change, and complexity.

However, throughout this dissertation, the importance of habits, experience, and training have been marked as significant for safety; both in relation to the analyses of the presented cases as well as in the more conceptual discussions of practical and pragmatic ways of reasoning. This general defence of those routines that are 'already in place' has been further elaborated on by this chapter's presentation of alternative perspectives on safe organizing. Returning to the emergency team case, it now becomes, with these arguments in mind, possible to articulate the importance of "training, disciplining, and coordinating the behavior of front-line emergency responders" (Holmes 2009: 308), also or perhaps even especially in times of emergency and uncertainty. With these lenses, we are able to question or at least reflect on the introduction of a new safety innovation like emergency teams – especially if it does not take into account the already established and (for the most part) well-functioning emergency routines at ward level, which have been developed over time, through trial and error, and situated in a specific environment. In this particular case, Perrow's claim (1979) that rules in terms of well-established practices and professional skills are likely to be reduced by standardization is quite

suggestive; when the standardized teams are introduced, the rules for emergency responses that are already in place are likely to be reduced.

Moreover, the focus on habits, routines, practices, training, and so on, reminds us that we cannot be alert all the time. In some safety literature, especially within the resilience tradition, constant alertness, preparedness, and attentiveness is presumed to be a necessity for safe organizing in times of uncertainty and change. It is essential to "check all necessary conditions and to take nothing important for granted" (Woods & Hollnagel 2006: 3). However, as Holmes's paper shows, such ideals are neither possible nor preferable in emergency situations, where sufficient and effective responses means that everybody cannot check everything – and that some things need to be routinized (and in this way 'taken for granted').

Take also the factor-ten medical error presented in Chapter 8; here, attention to the competences, experiences, and established habits and routines could, one would expect, have made quite a difference had it been discussed during the subsequent root cause analysis. Had focus been turned to the well-functioning practices and not only the ill-working ones, it would have revealed how and why the error was discovered and the risk of inflicting harm averted. In light of this, it would have been less obvious to determine the reliance on experience, routine, and skill as the enemy that creates unreliability and instils chance in the system. It would have been equally difficult to determine routines and experiences as inflexible 'old ways' that prevent improvisation, as the resilience approach suggests. Rather, these qualities spring forth as essential safeguards when organizing for safety. Experience, here implying routine, training, and practice in working with chemotherapy for children, was the reason for the mixer's suspicion that something was not right; a suspicion which could have averted the incident much earlier in the process. Similarly, experience and routine were the preconditions for the nurse acting out of the

ordinary by using her intelligent habits and discretionary capacities to prevent the error from escalating.

Dewey's use of the term 'intelligent habit' captures, I believe, some of the important elements of this argument. As laid out in Chapter 7, Dewey states that we "*know how* by means of our habits" (Dewey 1922: 92). Dewey's example of the man who needs to learn how to stand straight, as well as Mauss's example of the English troops who had not learned how to dig with French spades (Mauss 1934), are both illustrative here. Delivering safe practice is, from this perspective, a matter of training: It is a matter of growing habits and 'muscle knowledge' that enable the clinician to act in certain ways. Framed as such, it might be useful to think of safety as a comportment, an attitude, or an ability that instigates certain "*ways* or modes of response" (Dewey 1922: 42). Interestingly, the authors evoked throughout this dissertation put forward related arguments. For instance, Perrow speaks of professionals as "personnel who have complex rules built into them" (Perrow 1972: 26), and Holmes speaks of rules that are "drilled into" the emergency personnel (Holmes 2009: 302).

Dewey adds a further dimension to his concept of habits; namely, the distinction between intelligent and unintelligent habits, that is, on the one hand, those habits that are a result of earlier reflective experience and inquiry and, on the other, those that are pure 'thoughtless' routines. Or, as he also phrases it, it is the difference between acting in a certain way and repeating certain acts (Dewey 1922). Being unmistakably aware that we need both kinds of habits, Dewey argues, however, for the importance of intelligent habits for our ability to think, inquire, and draw on earlier experiences. Within this line of reasoning, the interesting choice is not necessarily between "reason and habit" (Dewey 1922: 77), or between discretion and routine, flexibility and rules, or the like; instead, it becomes imperative to question

what kinds of habits, routines and rules we introduce. We must ask, as to how we can make sure that safe organizing is more than just the 'thoughtless' habits of following guidelines, checklists, or using PO syringes. If we take the importance of forming intelligent habits based on earlier experience seriously, it might, for instance, be that one of the most significant consequences to be drawn from critical incidents is not the introduction of new interventions, garnering more safety procedures or more flexibility, but simply the thick description of the case itself and the learning potential and accumulated experience embedded in this description. In this way, an incident analysis process such as the root cause analysis might be highly valuable, not necessarily because of its search for root causes, its action plans, or its naïve understanding of reality as linear, stable, and universally standardizable, but rather in spite of these characteristics. The process of discussing and trying to map what actually happened on the basis of written materials such as journals and incident reports, as well as the versions of the incident generated by the people involved, is not only useful for guiding possible solutions; additionally, and perhaps more significantly, it can be an end in itself, as it can function as a shared memory and experience. Julian Orr coined the notion 'war stories' to capture the role of stories from the field as a collective memory among Xerox technicians (Orr 1996). This refers back to the concept of 'transmitted learning' raised by WHO; however, this particular version of transmitted learning is far from the ideal of universal standardization embedded in the story about 'passing the orange-wire test' (WHO 2005). Instead, transmitted learning is now about forming and fostering intelligent habits through reflecting upon, remembering, and talking about unsafe and critical incidents, so that next time a similar situation arises, a way or mode of response is somehow 'drilled' into the clinician.

9.8 An unsettled settlement

As noted, the three axioms, (1) take point of departure in the clinical situation, (2) be cautious about ideals of risk-elimination through system improvements, and (3) preserve the importance of existing practices, habits, and experiences, must each be taken as an idea or a working hypothesis that marks a possibility; they should be understood as propositions to try out. In Dewey's words:

> "The "settlement" of a particular situation by a particular inquiry is no guarantee that *that* settled conclusion will always remain settled. The attainment of settled beliefs is a progressive matter; there is no belief so settled as not to be exposed to further inquiry […]. In scientific inquiry, the criterion of what is taken to be settled, or to be knowledge, is being *so* settled that it is available as a resource in further inquiry." (Dewey 1938: 8-9)

The findings of this dissertation must then be taken as 'available resources in further inquiries' and they must be judged with a view to their ability to deliver an alternative repertoire of propositions to draw on in safety management efforts. In line with my employment of the term 'stance' to indicate an attitude, comportment, or approach, the hope is that the dissertation will have a 'formative' effect on the reader. I will therefore end this chapter by quoting Dewey from a discussion about the performativity of research, where he argues that research should also be considered as a way to create 'intelligent habits' in the reader. Hence, when we agree – or disagree – with others' work,

> "an attitude is formed which is a preparatory readiness to act in a responsive way when the conditions in question or others similar to them actually present themselves. The connection with action in question is, in other words, with possible ways of operation rather than with those

found to be actually and immediately required. But preparation for possible action in situations not as yet existent in actuality is an essential condition of, and factor in, all intelligent behavior." (Dewey 1938: 49)

10. The Myth of Failsafe Systems: Final Remarks and Perspectives

10.1 From the myth of the gaze to the myth of failsafe systems

In *The Birth of the Clinic*, Foucault illustrates how medical experience was rendered possible because of a reorganization of the healthcare system in France in the late 18th century, which coupled meticulous observation, description, classification of clinical knowledge with gathering, juxtaposition and analysis of this knowledge, thereby leading the way for medicine to become a science. With the birth of the clinic, the myth of the medical gaze was formed as a characterisation of the clinician's techniques to describe and analyse what he perceived; it was a myth that accounted for the particular method of isolating and articulating individual facts of the patients in order to organize a scientific language around an individual. However, the ideal of the total and exhaustive description and the technicalities of

combining language and perception in this particular way were soon, Foucault argues, replaced by a notion of medicine as an art built on the clinician's fine sensibilities and instincts, prior to language. The myths described by Foucault are intrinsically linked to the clinician; that is, to a clinician supported institutionally "with the power of decision and intervention" (Foucault 1994 [1963]: 89) and to the exclusivity of the clinician as he who "knows the language" (Foucault 1994: 115).

In this dissertation, I have asked as to the consequences of recent reorganizations in healthcare due to the patient safety programme, which is, together with other similar reform programmes, radically challenging this myth of the clinician's medical gaze. This is done not least through the introduction of a systemic perspective on errors, whereby safety is largely put into the hands of risk managers and system designers, as well as through the associated blame-free approach, which, to a certain extent, detaches the clinician from the responsibility of the treatment of patients. The myth of the gaze is repeatedly contested by reference to the large number of 'human errors' in healthcare, which are said to be caused by the variability and cognitive insufficiencies of the clinicians; they are caused by the so-called flawed human condition, which cannot be changed or altered, it is said, and that is why we need systems to protect us from it. The spell is broken, so to speak, and the "medical esotericism" (Foucault 1994: 115) that was part of the myth of the gaze, i.e., part of being a clinician with special abilities, is no longer taken for granted.

I have further showed how another myth seems to be replacing the myth of the medical gaze; namely, the myth of failsafe systems. This is the myth that healthcare institutions are essentially "*unsafe* due to the many human errors that occur when providing care, and second [that] this lack of safety *can be 'fixed' since these institutions are systems* in which safety can be 'built in' as a non-human property" (Zuiderent-Jerak et al. 2009: 1713). Interestingly, the myth of failsafe systems seems to be

introducing a new type of medical esotericism in healthcare related to the growing numbers of risk managers, quality coordinators, and safety representatives, who have now all become a part of the new exclusive group that 'knows the language'.

In each of this dissertation's main analytical chapters, I have addressed sub-elements of the new myth of failsafe systems. As such, I have addressed how the blame-free perspective of the programme is built on the myth that medical culture is essentially a blame-culture, that is, a person-centred community where the common reaction to error is one of finger-pointing and firing people (Chapter 5). I have challenged the dominant myth of risk elimination on which the programme's strong interventionist optimism is founded (Chapter 6), as well as the myth of an unchangeable human nature, which is employed to argue that patient safety is to be obtained by systems learning and through system improvements (Chapter 7). Finally, I have attended to the myth of one best way of organizing, which is dominant in the strong standardization trend of the current programme, but equally dominant in available alternatives based on resilience thinking (Chapter 8). In these last pages of this dissertation, I will briefly reflect upon the consequences of these new myths and their increased influence on the traditional roles, reasoning, and ethos of the clinician.

10.2 Changing demands to the medical ethos

"All agree on the exclusivity of professional judgment", (1995: 30) Rosenthal argues as late as 1995. This exclusivity is the common starting point for every classic account of medical reasoning and medical error described in this dissertation, for good and for worse, and it is, to a large degree, this exclusivity that constitutes the moral demands and the strong sense of responsibility inherent in the clinical situation. The significant internal social control mechanisms and self-regulating

efforts, described as an intrinsic part of medical culture in Chapter 5, should also be viewed in the light of professional autonomy: By controlling informal processes of forgiving error and managing malpractice, the professional community is in these studies best described as morally self-referential and relatively independent – although this independence is obviously institutionally constituted. And, as described above, it is this exclusivity that helps build the myth of the clinical gaze and the special sensitivities, abilities, and perceptiveness of the clinician.

The traditional medical ethos is not without its challenges; as described throughout this dissertation, the exclusivity and autonomy of decision-making comes with a high degree of responsibility, as well as significant professional and ethical requirements. One can say, from an office-based ethical perspective (Du Gay 2008, 2009; Condren 2006), that the instituted responsibilities, duties, and virtues of the medical persona, as well as the limits of operation inscribed in the office of medicine, have traditionally constituted medicine as a morally demanding vocation. In understanding the ethical challenges of the medical persona and the conditions of medical work, one must turn, firstly, to the links between the situated and provisional nature of medical knowledge, the powerful obligations to act, and the awareness that these actions are likely to affect people's lives. In this way, medicine is largely about 'training for uncertainty' (Fox 1957) and being able to 'act-as-if', while accepting that no matter how competent one may be, he or she may still be mistaken (Paget 1988). A second significant moral demand is contained in Fox's (1957) description of the clinician's duty to 'act like a servant'; that is, to consecrate one's life to the service of humanity and to always let the patient's life be the first consideration. This strong sense of responsibility and of sacrifice equally point to a constitutive relationship between the infallible nature of medicine and the responsibilities and ethos of clinician; it becomes impossible to separate medical error from the moral standards and obligations of the healthcare professional. The

informal and gentle processes of co-collegial identification, control, and regulation of misconduct; appointing and taking responsibility for things going wrong – and even blaming oneself and others; as well as forgiveness, understanding, restitution, and learning from one's mistakes are all constituents of the 'office of medicine'. These are all elements of becoming and being a clinician, of forming intelligent habits, valuable experiences, and, in the words of Dewey, 'good sense':

> "Sagacity is power to discriminate the factors that are relevant and important in significance in given situations; it is power of discernment; in a proverbial phrase, the ability to tell a hawk from a hernshaw [heron], chalk from cheese, and to bring the discriminations made to bear upon what is to be done and what is to be abstained from." (Dewey 1938: 61)

As such, it is the clinician's virtues of practical reasoning, it is his trained attitude or manner of which Fox spoke (Fox, 1957), and his particular way and mode of acting, in the Deweyan sense, that are essentially challenged when medical errors are understood as systemic, the clinician as 'a victim' of error, and blame formally banished – all in the good faith that this will get healthcare professionals to admit and report errors so that system improvements can be initiated.

In the context of recent changes within healthcare organization and management, the patient safety reform programme is only one of many new forms of managerialism that essentially challenge the autonomy of the healthcare professional and instil new demands, professional as well as moral. In an epilogue from 2003 to his 1979 book on surgery, Charles Bosk remarks that "any regime of managed care clash with the ethos of surgery as I found it in the 1970s, namely 1) that resources should be utilized more efficiently and 2) this efficiency can be obtained through centralised decision making far from the bedside" (Bosk 2003: 244). The idea about efficiency, Bosk argues, clashes radically with the prevalent professional norm to

"do everything possible, whatever is necessary to prolong life" (Bosk 2003: 244). This clash means that from the view of the present, the surgical persona from Bosk's 1970's US study in some instances appears "anti-rational, especially if rationality were measured in terms of cost-benefit ratios, expectations, and likely outcomes" (2003: 245). The traditional norm to do everything possible without calculation of costs and benefits (for neither the patient, nor the hospital's economy, nor overall efficiency) has its downsides, Bosk argues, when lifesaving efforts only prolong suffering, when informed consent is lacking, or when healthcare professionals fail to live up to the radical demands of self-sacrifice and heroic efforts (Bosk 2003: 245). These dilemmas notwithstanding, Bosk finds the traditional medical ethos 'sociologically appealing', as it were, because of "the indispensable, irrationally excessive element of professional service" inherent in its ideals (2003: 246). Bosk therefore seriously questions the traditional surgical persona's possibility to "coexist with a management regime hostile to its assumptions, its expression, and even its definition of success" (2003: 246).

At the same time as the traditional ethos is challenged by the programme in regard to its classic duties and responsibilities, a new set of moral demands of a more 'responsive' or 'entrepreneurial' managerial kind are introduced, whereby the clinicians are expected to be promoters of new management regimes – not least the safety and quality agendas. This double movement of, on the one hand, reducing clinical autonomy and, on the other, increasing calls for engagement in reform programmes has been linked to other reforms of public sector organization. As such, Paul du Gay has argued that recent developments in public administration have led to "assaults on discretion and latitude for independent advocacy" at the same time as efforts of "seeking ways of making officials more 'responsive' in managerial terms" are increasing rapidly (Du Gay 2000: 125). Hereby, an important point is made about the new challenges for the clinician. Because not only must

healthcare professionals "learn to become efficient resource managers" (Bosk 2003: 246) or learn to follow the various reform programmes' requirements, but they are also expected to be engaged and enthusiastic about these programmes, to be devoted champions, and, as such, a new entrepreneurial morality or vocation is challenging traditional professional values (Du Gay 2000, 2008).

All this leaves us, I believe, with a phenomenon that begs a question: Ever since I started this project, I have been puzzled by the apparent lack of resistance among the clinicians, who mostly seem to quietly accept how the myth of failsafe systems challenges their autonomy, clinical experiences, and competences, as well as their fundamental responsibility for the treatment of patients. And why is that? The first time this question presented itself was while attending a one-day educational course to become a clinical-level patient safety representative. After going through the obligatory psychological gimmicks to prove the participants' fallible cognitive capacities (see Chapter 2), and thereby to puncture the myth of the medical gaze one might add, a course leader pronounced: "with enough checklists in healthcare, we do not need much education". Although the standardization requirements of the programme can, in their radical versions, be understood as supporting this claim, it was, nonetheless, the first and last time I heard a representative of the safety programme be so naïvely unnuanced as to the miraculous effects of standardization. Of significance, then, is not so much the course leader's ill-advised statement in itself, but rather the lack of reactions by the many course participants, of which most were nurses; however, quite a few were physicians, who are by far the most educated profession in Denmark (based on the length of their studies).

I am not the first to be puzzled by the clinicians' tacit consent. In Kathryn Montgomery's work on medical reasoning, she asks why physicians accept the misrepresentation of their practice, competences, and particular ways of reasoning,

and describes these misunderstandings as "an epistemological scotoma, a blindness of which the knower is unaware" (2005: 5). According to Montgomery, the physicians' lack of resistance can be explained by culture, i.e., that they are largely trained to believe that medicine is a science, and as they learn to practise medicine – and to 'act-as-if' in Paget's terms (1988) – they learn to think of their practice as more certain than it is. This is coupled with increased expectations of certainty: "All of us have come to expect an endless series of advances that have made diagnosis, treatment, and prognosis more and more reliable" (Montgomery 2005: 191). By rearticulating Foucault's account of the birth of modern medical science, a nuance can be added to this argument; the problem it is not just that medicine is represented as a science, but that a particular account of science has become dominant: One of statistics and quantifications. As such, the clinician's thorough observations and technical qualitative descriptions of disease with view to details, uniqueness, and differences, i.e., that which initially led the way for medicine to advance to a science, are no longer articulated as the core of clinical medicine. What is more, it largely seems that the dominant available alternative to the scientific descriptions of medicine is the representation of medicine as an art and the clinician's abilities as being of an intuitive, aesthetic kind based on "instincts and sensibility, rather than experience" (Foucault 1994 [1963]: 55). This overriding dichotomy between the hard, quantifiable, and evidence-based and the mushy, subjective, and aesthetic essentially leaves the clinician without a language to describe the importance of medical experience, trained skill, detailed description, and the circumstantial character of medical reasoning. In sum, they lack a language to describe what they actually do and therefore also a language to criticize or question the dominant logics of the patient safety programme, and other programmes like it.

10.3 The danger of dogmatism

In Chapter 2 of this dissertation, I stated, quite provocatively, that the safety programme and its advocates could be likened to a religious movement. Knowing that this is somewhat undeserved, not least when including the hundreds of thousands of clinicians who work actively to translate the requirements of the safety programme into situation-based solutions to concrete safety problems, it is, nonetheless, important to address the dogmatisms of the programme as well as the somewhat hostile attitude towards critical voices. Being critical or just hesitant, especially when it comes to the dominant principles of systems thinking and the blame-free approach, is quickly understood as 'going against' safety, and who can be against the safe treatment of patients? Those within healthcare who have challenged these elements of the programme might receive rather rough treatment from the more institutionalised members of the patient safety movement: They might even be described as "witch hunters" trying to pull healthcare back to "the dark ages of blame and shame in medicine" (Woodward et al. 2009: 1293). A more nuanced argument concerning the construction of safety is not always welcomed either. In the above cited comment to a study arguing for some possible positive effects of blame in healthcare practices (Collins et al. 2009), representatives of the safety movement put forth the following argument: "Wholehearted adoption of the new paradigm will require an abandonment of the old, and its associations. A call for a blame-free culture is therefore more likely to be effective in breaking with the old ways than a more nuanced argument" (Woodward et al. 2009: 1293).

Be that as it may, the programme is not without its internal critiques, and especially the strong standardization agenda is increasingly being blamed for the widespread lack of evidence of positive results of the programme. However, also within the new resilience approach to safety, the systemic and blame-free principles are largely

upheld, and attempts to discuss these principles are perceived as destructive for the safety movement at large: "The re-emphasis on personal accountability in complex, dynamic and risky work environments […] is worrisome and may set the patient safety agenda back 20 years, and is unlikely to prevent patient harm" (Sheps & Cardiff 2011: 152)[73].

It is interesting to step back from the dominant rhetoric of safety advocacy and compare it for a moment with the Harvard Medical Practice Study from 1991, which instigated the safety movement by establishing the scope of the problem and discussing possible actions and solutions. Although the most important elements of the programme are laid out in this early study, two vital differences in argumentation should be mentioned: Firstly, reduction of harm caused by medical error is understood as a *continuous* achievement. Given that previous research in the causes of errors has reduced adverse events in significant areas[74], it is believed that future research will do the same; "the adverse events of an earlier day […] were greatly reduced in frequency after research led to an understanding of their causes. Future reductions in the occurrence of adverse events also depend in part on research into causes" (Leape 1991: 383). Secondly, a *wide range of measures* are recommended in the quest to manage medical errors and include scientific advances, system analysis,

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[73] Interestingly, this particular paper discusses "the limitations of the patient safety movement" based on its continuous failure to deliver evidence of its success and it therefore suggests that "until there is a shift in thinking about the sources of failure in complex, dynamic systems […], efforts to improve patient safety will be limited. The last decade has made this abundantly clear" (Sheps & Cardiff 2011: 148). From this perspective, it is indeed puzzling why setting "the patient safety agenda back 20 years" is such a radical threat. The paper's critique of recent calls for accountability is referring primarily to a newer paper on the importance of balancing 'non-blame' and accountability in patient safety management (Wachter & Pronovost 2009). Similar suggestions have been addressed in a call for a 'fair blame' approach to replace the blame-free approach of the contemporary safety programme (Timbs 2007).

[74] The mentioned areas are "high rates of heart block, bleeding, and mortality in the early years of heart surgery, problems associated with the initial attempts at organ transplantation, and side effects of many drugs" (Leape 1991: 383).

education, development and dissemination of guidelines and standards for practice, disciplinary action, to name some. As part of this list, the 'systems perspective' is mentioned: "Preventing medical injury will require attention to the systemic causes and consequences of errors, an effort that goes well beyond identifying culpable persons" (Leape 1991: 383), and the introduction of failsafe systems is understood as part of the solution: "automatic "fail-safe" systems – such as a computerized system that makes it impossible to order or dispense a drug to a patient with a known sensitivity – are likely to have an increasing role" (Leape 1991: 383). Just as important, however, are questions of incompetence, ignorance, and negligence:

> "The reduction of adverse events involving negligence will also require an increased emphasis on education. To the extent that failure to meet the standard of practice is due to ignorance, improved dissemination and enforcement of practice guidelines might be effective. The development of better mechanisms of identifying negligent behavior and instituting appropriate corrective or disciplinary action is equally important." (Leape 1991: 383)

The focus on continuity and the acknowledgment of the variety of organizational measures that can be selected depending on the nature of the problem stand in sharp contrast to the current rhetoric of introducing a new paradigm to radically break with the old ways. Since the Harvard Medical Practice Study and especially since the American Institute of Medicine report *To Err is Human* (Kohn et al. 2000), the patient safety movement has succeeded in simplifying its messages and purifying its organizing principles to such an extent that it has become a dogmatic and rather inflexible approach to safety management, which is built on a few abstracted and generalised assumptions about healthcare organizations and the conduct of healthcare professionals. There is no doubt that, locally, this approach is not just readily 'implemented' into healthcare practice, and studies have shown how

technologies and organizing principles of these kinds are continuously translated, resisted, modified, or rejected in concrete situations (e.g., Berg 1997; Bowker & Star 1999; Nielsen 2010). In spite of this, I have shown that the key assumptions of the patient safety programme and its overall myth of failsafe systems are likely to result in significant reorganizations and redefinitions of the clinical situation and the responsibilities, competences, and moral conduct of clinicians. As such, these are transformations that do not only influence patient safety and the distribution of risk but also the constituents of the clinical situation on a more generic level. And inspired by Foucault's history of the reorganization of medicine in ways that rendered medical experience possible, the most important question to be asked based on this dissertation's discussions is whether we are currently in the process of reorganizing healthcare in ways that seek to render clinical experience *im*possible or at least insignificant.

Where does this leave us in terms of safety management then? Do the analyses of this dissertation leave us disheartened as to the possibilities of increasing safety in healthcare? And should the warnings by John Law, Charles Perrow, and others about trying to fix healthcare in ways that could potentially make it unsafe cause us to evade the issue altogether? I believe not. Rather, the pragmatic stance of this dissertation, and the sources it utilizes, point towards the need for a much more situation-based and nuanced debate about the relationship between rules, habits, experiences, skills, regulations, standards, and medical reasoning in healthcare in general and in safety management in particular. Furthermore, this stance points to the importance of focusing on the particularities and uniqueness of the clinical situation; of being cautious about golden organizing principles and innovative optimism; and of preserving the importance for what is already there, in terms of existing practices, intelligent habits, valuable experiences, skill and competences, and much more. Most importantly, perhaps, a pragmatic stance reminds us that we can

never predetermine the worth of the tools and methods we use; any value of a proposition or technology can only be determined with regard to its concrete usefulness in relation to the problem it is trying to solve. Or, with Jessica Mesman's words: "Medical technology […] is never intrinsically good or bad, but we only know *a posterior* in which cases its deployment was useful" (Mesman 2008: 192). As for the organizing principles and specific technologies of the contemporary patient safety programme, it seems that this pragmatic consideration would be an excellent place to begin should we wish to rethink patient safety efforts in healthcare.

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