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Moving with care: challenges and opportunities for supporting patient safety in ward nurses

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CHAPTER 5

HOSPITAL WARD INCIDENTS THROUGH THE EYES OF NURSES – A THICK DESCRIPTION ON THE APPEAL AND DEADLOCK OF INCIDENT REPORTING SYSTEMS.

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Abstract

Incident reporting systems (IRSs) are considered a valuable method to improve patient safety in hospitals. Although many barriers to incident reporting have been formulated, little attention is paid to the socio-cultural context of hospital care and the use of IRS over time.

Based on ethnographic fieldwork on a neurology/neurosurgery ward of a tertiary referral center in the Netherlands, this article presents a thick description on the perception of nurses and physicians toward incidents, their reporting practices and the general utilization of IRS for improving patient safety. Results suggest that nurses demonstrate a form of structural vigilance in achieving safe health outcomes as part of normal work. Consequently, nurses find it difficult to specify what events can be considered a report-worthy event.

Analysis of the use of IRS through four perspectives toward culture (integration, differentiation, fragmentation and bounded ambiguity) showed that the IRS took different forms over time, depending on the legitimacy the reported topics received in the social group dynamics between physicians and nurses. For nurses, it remained often unclear if the actions surrounding the IRS and the invented improvements indeed contributed to patient safety. The results indicate that "incidents" as a concept may have little value for the work on hospital wards and illustrate that IRS has no 'objective' purpose in its own right, rather is shaped by the social-cultural context its employed in.

1. Introduction

Incident reporting systems (IRSs) were introduced as a promising mechanism to detect and learn from near-misses and unwanted events in healthcare (Brunsveld-Reinders et al., 2015). The adoption of IRS, however, has not delivered the expected results for quality improvement and safety in hospitals (Mahmoud et al., 2023; Shojania, 2008). Besides there is little direct evidence, and no links have been found for a sustained contribution and incremental improvements in patient safety as a result of IRSs (Goekcimen et al., 2022).

Although several bottlenecks and recommendations have been formulated for the correct use of IRSs, it remains questionable how these can be integrated in healthcare activities to improve patient safety (Macrae, 2016; Pham et al., 2013; Schiff & Shojania, 2022).

The struggle to embed IRSs partly exist because the link between social group dynamics, cultural context and IRS are not sufficiently appreciated. Often associations between large (ill-defined) concepts such as blame culture (Khatri et al., 2009) or the absence of a reporting culture (Stephanie et al., 2017) are put forward as explanations or potential solutions to ineffective IRS use (van Marum et al., 2022). Most of these studies focus on perceptions toward IRS, but do not account for temporality or different cultural manifestations (de la Torre-Pérez et al., 2023; Levine et al., 2020). In turn, studies accounting for temporal aspects in incident reporting usually neglect their relational and cultural aspects (Gallego et al., 2015). Examining how reporting systems are actually used over time in relation to their cultural context could provide insight in their usefulness for improving patient safety in hospitals.

In-depth empirical research is necessary to understand how reporting systems presently function and contribute to patient safety. With such insight, managers, quality advisors, physicians and nurses could be supported toward more fruitful and effective ways of employing IRS as seen in other industries.

2. Theoretical framework

2.1 Incident reporting in healthcare IRSs have been adopted in health care with the idea that reporting near-misses and (sentinel) adverse events reveals vulnerabilities of the care system that either have led or will lead to patient harm (Barach & Small, 2000; Mahajan, 2010). Learning by reporting events takes place through selecting relevant incidents, classifying and interpretating their causes, and implementing and evaluating improvements through explicit feedback (Drupsteen & Guldenmund, 2014). IRSs thus assume that they can point to potentially preventable situations and avoidable types of harm that lay dormant (latent) in the system (Leape, 1999; Schaaf, 2002). These views have been criticized for their linear approach, disvalue for non-incident situations and often constraining suggestions for improvement (Sujan et al., 2019). Critics advocate a more holistic approach toward learning from incidents, shifting the investigation to learning from performance adjustments – normal work – in ordinary working conditions (Sujan et al., 2017). Incidents and adjustments should then be seen as complementary sources for both cause-effect learning and untriggered reflective learning.

Many definitions surround unwanted harm to patients: adverse events, sentinel events, incidents, near-misses, complications, failure-to-rescue, to name a few. Here, we follow the definition of incidents held be the Dutch legislation and inspectorate as: *"an unintended or unexpected event, which relates to the quality of care and has resulted, could have resulted, or potentially could result in harm to the client"* (Inspectie Jeugd en Gezondheidszorg, 2023). If the incident results in death or serious harmful consequence for the patient, the event is viewed as a sentinel event and reporting and subsequent investigation by the hospital is legally mandatory.

Nurses play an important role in reporting, as they spend the most time at the patients' bedside and can promptly notice and report incidents. Many barriers can exist for nurses to report incidents (Vrbnjak et al., 2016). Often institutional recommendations are made to improve nurses' contribution and position, for instance through voluntarily reporting (Woo & Avery, 2021). At the same time, sparse attention is paid to what nurses themself consider report worthy events and activities, while pre-specified reporting categories can only approximate the details of actual events to a certain extent and will therefore always remain under-specified. Given nurses' unique role in patient care but limited formal decision-making power over patient concerns, it is important to view recommendations with appreciation to their cultural context.

2.2 Reporting systems and culture. Preventing unwanted outcomes of care and safety culture are often mentioned in one breath (Pham et al., 2012), while reporting systems and culture likewise have been of scientific interest (Benn et al., 2009). Blame cultures are often named as hinderances to achieve a reporting culture, or in more recent times, a just culture (Barkell & Snyder, 2021; Khatri et al., 2009). Many studies try to address these difficulties by measuring the perceptions of healthcare workers' willingness and perceived usefulness to reporting. Reporting culture, here, is most often seen as something stable and an achievable end state, just as safety culture is approached. The danger with using these types of explanations is that they do not offer new insights in underlying social actions and relationships. Rather, they relabel causes and explanations into ill-defined concepts, such as a 'presence of blame culture' or 'lack of safety culture'. Consequently, such explanations become circular while missing out on real, but hard to measure, social concepts and phenomena ingrained in everyday life (e.g. power dynamics) (Bye et al., 2016; Dekker & Nyce, 2014; Parker & Davies, 2020).

Anthropologists have a fairly different understanding of culture, and approach the concept by interpreting meaning through different perspectives and on multiple analytical levels: "*from the discursive, linguistic level, to a more tacit and "taken for granted" level, and finally at a more basic philosophical or epistemological level, where culture is considered a prerequisite for knowledge*" (Haukelid, 2008). This interpretivist research approach, rather than the in safety science more traditional functionalist approach, can also be taken into account when studying reporting culture (Henriqson et al., 2014).

In doing so, different perspectives can be taken to analyze manifestations of organizational culture: the perspective of integration, differentiation and fragmentation (Haukelid, 2008; Kappos & Rivard, 2006). These analytical perspectives aid in the sensemaking of culture by viewing the extent of consensus, level of consistency and the orientation toward ambiguity within and between groups (Kappos & Rivard, 2006; Martin, 2002). In the integration perspective, culture can be approached as shared understanding – there is agreement on the meaning of behaviors, concepts and symbols within their cultural context. In a differentiation perspective, conflict and power guide the interpretation – cultural meaning here, is a lack of shared understanding and shows opposing interpretations between groups or sub-cultures. In a fragmentation perspective, ambiguity is the lens through which culture can be understood by its contradictions, similarities and absence. Still, there must be a frame or sense of definition for the fragmentation of culture to have any meaning – a perspective that Alvesson calls bounded ambiguity (Alvesson, 2002). By

providing broadly shared rules and meanings (i.e. a frame of reference), bounded ambiguity offers a stage on which unclarities, confusion and tricky meanings can still be clarified, although uncertainties and conflict are at play (e.g. how reporting of past incidents improves the safety of future patients). All these perspectives can be used as analytical lenses in studying cultural phenomena, showing different viewpoints, discourses and social actions exhibited in their cultural-historical context.

Since the often-named barriers for reporting are ubiquitous and learning seems to be lagging behind the suggested potential of a reporting system, we wanted to understand how social group dynamics surrounding reporting arise in practice. By examining a reporting system and behavior of nurses through the different cultural lenses, we hoped to see how incident reporting contributes to safe care on hospital wards. To achieve this, we formulated two analytical objectives. First, since nurses have such an important signaling function in ward care, we wanted to get a more naturalistic understanding of what nurses perceive as incidents – to be reported or not – as part of their normal work routines. Second, we wanted to understand how different cultural perspectives can explain the reporting behavior of nurses, and the functioning of the reporting system on the ward in general.

The rationale for this twofold analytical approach is that the legal and institutional obligation to implement and use IRSs, creates the promise that patient safety will be improved when IRS is used diligently and appropriately. Given the mixed findings in the literature however, we believed that this promise might conflict with the actual perspectives of nurses - about what constitutes an incident, which arguments justify making a report and what believed gains are in the use of IRSs. To this end, we formulated our research question as: How do the perspectives of ward nurses and physicians toward incidents relate to their reporting practices, and its subsequent contributions to patient safety on a hospital ward?

3. Methods

3.1 Short introduction in methods. The concepts incident and culture are both highly depended on the context in which they manifest, and the meanings attributed by the people living in that context. An analytical approach deeply intertwined with the study of interpretation, contextual meaning and culture is thick description (Denzin, 2001; Geertz, 1973). A thick description encompasses a richly written, interpreted account of complex social, cultural events and phenomena. By describing the events rich, multiple perspectives and nuances can coincide and give meaning to social actions within their cultural context (i.e. the emic perspective). By using interpretation, the researcher is able to attribute meaning to studied behavior, verbal expressions, symbols and phenomena (i.e. the etic perspective) (Ponterotto, 2006). Thick description can be seen as the anthropologist' counterpart of a measurement of culture, which has been put in the debate for a more multidisciplinary approach toward studying safety culture (Haukelid, 2008; Henriqson et al., 2014). The same arguments can be made for using ethnographic fieldwork to study the concept of incidents, and their reporting mechanisms in relation to culture. Ethnography is increasingly gaining traction in studying organizational culture and patient safety, since the methodology supports the iterative exploration of situated actions and entrenched relationships during data collection and analysis, while being appreciative toward the cultural context which shapes the hospital as an institution (Dixon-Woods, 2003; Dixon- Woods et al., 2009; Kok et al., 2020; Leslie et al., 2014; Navajas et al., 2013; van der Geest & Finkler, 2004).

This study was part of a larger ethnographic inquiry aimed at understanding the everyday work on a hospital ward from the perspective of ward nurses, in contrast to work as specified in protocols and hospital quality indicators, or verbalized in meetings involving managers, quality advisors and health professionals carrying responsibility and support for the wards' activities. Most activities and meetings on the ward were followed as part of this ethnography. Concerning the reporting system however, the wards' activities were not supported or interfered with by the researcher in any way.

3.2 Setting, Sampling, Data Collection and analysis. Data collection and analysis resulted from 2,5 years of ethnographic fieldwork on a neurological/neurosurgical ward in tertiary referral center in the Netherlands. For this study, various qualitative research methods and qualitative and quantitative data sources were triangulated. The data collection and analysis process were supported by maintaining a research diary, allowing reflection on gathered data and the generation of new research

questions while in the field. Methods included naturalistic and semi-structured interviews, participant observations shadowing nurses, physicians and paramedics, unstructured observations during team- and quality meetings and document analysis.

After fieldwork, the analysis was guided by the thick description technique in which data is interpretated and reinterpreted, to link prior research questions and formulate answers to new ones. This, 'plowing through fieldwork data' builds a structure in the data related to the research questions during fieldwork and the subsequent analysis when returning from the field. As such, writing up a thick description is a process of questioning and revaluating collected data – starting with a simple question, and using the data to formulate answers to raise new questions which are again approached by relevant fieldwork data.

The result is richly written account of the events and circumstances surrounding incidents, reporting and the consequences for patient safety on the ward from the perspective of ward nurses (the emic perspective). The emic perspective is contrasted with questions and reflections from the researcher (the etic perspective), illustrating the analytical process of how the thick description arose (see table 1).

Table 1. Analytical process of the thick description. The table displays an overview of sections and guiding questions that, as a whole, makes up the thick description. The thick description aims to answer this paper's research question, i.e. how ward nurses' and physicians' perspectives toward incidents relates to their reporting practices and subsequent contributions to patient safety on the ward, by answering multiple sub questions throughout the analysis derived from field work data.

Section and title	Guiding question(s)	Goal and rationale	Primary supporting data
4.1 Incident types on the ward.	What was the last time ward nurses prevented an incident?	To understand what nurses understand by the term incident and what types of incidents are present on the ward.	Document analysis of reported incidents. Semi structured interviews with nurses (on psychological safety, administrative load, work satisfaction, autonomy and incident prevention).

Table 1. Continued

Section and title	Guiding question(s)	Goal and rationale	Primary supporting data
4.2 Nurses and patients: prevention of fall incidents.	How do ward nurses prevent incidents? To what extent are these purposefully prevented?	To understand how fall incidents relate to the types of patients on the ward. To reflect on what reporting means if prevention is part of normal work.	Participatory observations. Individual and group interviews on application of physical restraints. Document review of hospital protocols.
4.3 Nurses, physicians and medication errors: incidents and collaboration.	What is the role of multidisciplinary collaboration in incidents?	To understand how medication errors relate to collaboration and prevention. To reflect on what constitutes an incident as part of normal work and the implications for reporting.	Participatory observations. Individual and group interviews on medication administration. Document review of hospital protocols, e-learnings. Semi structured interviews with nurses, physicians and paramedics (on psychological safety, administrative load, work satisfaction, autonomy and incident prevention).
4.4 Agreement and consensus: the integration perspective.	How are reports made, what happens to reports once reported? What common reasons and goals are given for making reports and using the reporting system on the ward?	To illustrate the structure and information flow of the reporting system and committees. To understand the extent of consensus and consistency between nurses and physicians in the use of the reporting system.	All collected data: Research diaries, fieldnotes, document analysis, interview transcripts, e-mail communication.

Table 1. Continued

Section and title	Guiding question(s)	Goal and rationale	Primary supporting data
4.5 Responsibilities and power in conflict: the differentiation perspective.	When do nurses and physicians make reports, how does this relate to the different medical specialties and the historical context of these subgroups? For what opposing goals and reasons do the subgroups of nurses and physicians use the reporting system?	To explore how the collaboration between nurses and physicians influences the functioning of the reporting system. To understand the absence of consensus, (in)consistencies and ambiguities between the subgroups of nurses and physicians in their perspectives on the use of the reporting system.	All collected data: Research diaries, fieldnotes, document analysis, interview transcripts, e-mail communication.
4.6 Fixing to solve, or solving to fix? The fragmentation perspective.	How are reports discussed and what improvements are invented? What goals and reasons are left for using the reporting system on the ward?	To understand how incidents reports are discussed and analysis informs the development of improvements on the ward. To understand contradictions in the level of consensus and ambiguity between the subgroups of nurses and physicians in the use of the reporting system.	All collected data: Research diaries, fieldnotes, document analysis, interview transcripts, e-mail communication.
4.7 Incident reporting and its various contributions to patient safety: bounded in ambiguity?	What are the yields of the reporting system on the ward for patient safety?	To understand how the reporting system contributes to patient safety on the ward.	All collected data: Research diaries, fieldnotes, document analysis, interview transcripts, e-mail communication.

The thick description thus encompasses the 'results section' of this article, which proceeds as follows. In line with our two-fold analytical objective, we first explore what nurses perceive as incidents – to be reported or not – as part of their normal work routines. The first section examines what situations nurses refer to as incidents. Then, following the two most common types of incidents (falls and medication errors), section 4.2 explores how patient fall incidents are prevented , whereas section 4.3 discusses how medication errors manifest in collaboration between nurses, physicians and paramedics. These sections are closed with a summary on the nature of the nurses work and a reflection on what this means for incident reporting.

For our second analytical objectives, the functioning of the IRS is studied over time by viewing the incident reporting system through three different analytical lenses of culture. The sections 4.4 to 4.6 interpret data collected over two and a half years on the ward through an integration, differentiation and fragmentation perspective toward culture respectively. These sections illustrate the reporting behavior of nurses, physicians, and the functioning of the reporting system on the ward in general. The thick description ends with section 4.7, where the contributions of the reporting system to patient safety on the ward are questioned. Following this process, the sections of the thick description offer an answer the main research question: How do the perspectives of ward nurses and physicians toward incidents relate to their reporting practices, and its subsequent contributions to patient safety on a hospital ward?

3.3 Ethics. This Medical Ethical Board Leiden Den Haag Delft reviewed this study and concluded that the research proposal respected the rights of the participants and was found of no concern [N20.019/ML/ml].

4. Results

Our inquiry departs from interviews with nurses and allied health professionals on the ward held six months after the beginning of the larger ethnographical study. The eighteen nurses and two nurse leaders in these interviews were asked "what was the last time you prevented an incident?". The researcher prompted the respondents with this question to hear what type of situations the nurses referred to as 'incidents', how nurses generally perceive the occurrence of preventable incidents on the ward and to what degree these are purposefully prevented.

4.1 Incident types on the ward. When prompted during the one-on-one interviews, the nurses gave different reactions to the question about when they last prevented an incident. Some nurses readily gave an example from their last shift or situations from the weeks before, while others struggled to find an immediate answer. After a brief moment of consideration, even hesitant nurses however provided examples about common incidents on the ward. Two main types of incidents kept returning in the answers, or were directly labelled as most common:

> *"um fall incidents, medication incidents, um… yes what else do you have. Those are the two main. Uh… yes. No, those are the two biggest…"*

Incidents that were not related to these two incident types were sparse. One nurse referred to a situation in which she recognized a respiratory decline in her patient and called the physician, after which the patient was send to the Intensive Care Unit (ICU). Another nurse related the word incident toward a situation in which a patient and a fellow nurse were not getting along. Some nurses were not able to provide an answer to the question altogether.

Should we be surprised by this finding? Incidents do have a taste of paradoxicality. After all, how would one ever really know if an incident was ultimately prevented if no action was taken? One nurse confronted the researcher with such an observation, in reaction to the researchers' question that perhaps the difficulty of the question points to the difficulty in determining what an incident is:

> *"Well no, it is not difficult to determine what an incident is, but it is difficult to determine how you have prevented an incident, or whether you have prevented an incident. So, for example, you can say yes you put on someone's care mittens so that he did not pull out his (nasal, JT) probe, but who knows, who knows, he*

would not have pulled out his probe. Usually, you don't put on care mittens until they've already pulled the probe out. So it is, you would rather not put on someone a care mitten because it is quite restrictive of freedom. So, did you prevent the incident? No."

If we revisit the question what the ward nurses understand by the term incident, we see, alongside diffuse interpretations, two commonalties: (1) incidents refer to either medication incidents or fall incidents and (2) it leaves to wonder what incidents can indeed be actively prevented by the nurses or if these can only be labeled incidents after a negative event has already occurred. Integrating our findings thus far, we proceed our inquiry by looking at fall incidents, and how these can or cannot be prevented.

4.2 Nurses and patients: prevention of fall incidents. Before we can answer if an incident could have been prevented, we need to appreciate the considerations and subsequent actions made by the nurses. What was the patient's condition and behavior at that time? What tasks was the nurse trying to accomplish? First, we need to fully understand the nature of the nurses' work.

The ward under study was a neurological/neurosurgical ward. Patients admitted to the ward typically suffer from spine and head trauma, brain tumors, cerebrovascular accidents or (chronical) neurological disorders. Consequently, patients can suffer from paralysis (e.g. hemiplegia), cognitive disorders (e.g. perceptual impairments, neglects), or are recovering from heavy brain surgery. Typically, patients feel heavily fatigued, or suffer from speech problems, dizziness, weakness, reduced appetite, lack of coordination and poor balance. In more severe cases, patients become confused or delirious, or show personality and behavioral changes. These symptoms can make the wards' patients very reliant upon the nurses, but also makes their behavior impulsive and unpredictable. While medical and nursing policies try to treat and soften these symptoms, the nurses regard the emergence of potentially self-harming behavior more of a given fact inherent to caring for neurological/neurosurgical patients than an unique event.

"Sometimes it's so, if you work in another department for example an internal ward or something, sometimes a patient comes in quite well and they start developing symptoms and so on during the admission. But here they come in completely confused and in dire straits. And then I think, yes, we have to pay attention here, here, here and here. So we're already going to order a tent (posey, JT) bed, we're already going to do this, and I know what (else, JT)"

As the above quote illustrates, preventing incidents is routine work on the ward. To anticipate potentially unpredictable behavior in their patients the ward nurses engage in preventive actions to forestall self-inflicted patient harm. For example, elderly patients who have a history of falling and function cognitively clear are made attentive about the risks of falling or are told to take it slow the first days after surgery, whereas for more severely confused patients sedative medicine or posey beds are more likely to be considered. Such preventive actions are made considering the availability and skills of the present staff, underscoring the normality incidents are reckoned with.

Preventing incidents also requires monitoring the patient. One nurse illustrated this in response to questioning her what the last time was that she prevented an incident:

> *"Um… well, that happens quite regularly. I'm just trying to recall if that was today… we had a camera on that man and he was climbing over a bed rail again… well…. I was just in time to push him back, um…, [I mean, JT] to tell him he 'had to wait for a second'."*

The weighing of such actions is driven by the nurses' assessment of the potential risks and the clinical situation of the patient which vary in invasiveness accordingly. What comes into play here is that sometimes trade-offs have to be made between "safest" and what is most "practical" in the best interest of patient treatment. Early mobilization is for example viewed by the ward as one of the key principles for successful recovery, but can be a risky undertaking for elderly and weak patients. Here the nurse needs to consider if patients too can estimate their stability sufficiently themselves or overestimate their capabilities.

Because in the meantime, other patients have to be tended to as well. Such difficulties in weighing potentially dangerous situations against patient- and treatment related concerns, result in a form of structural vigilance in the nurses. This does not mean that a nurse hangs around with sustained concentration and waits for an opportunity to intervene. Vigilance here, rather refers to the continual awareness and relative unease of a nurse that extra attention should be paid to a patient's behavior while simultaneously other patients need to be tended to in other rooms. As one senior nurse explained, all the neurological conditions result in an attitude of being keen on potential mishap:

> *"I think that on our ward, it's like a second nature to keep an eye on a patient. With, um, the risks of falling due to a hemiplegia or a cognitive impairment or whatever it may be."*

Remarkably, several nurses explicitly mentioned that although they try a lot to prevent incidents from happening, sometimes incidents still occur. They try to catch a falling patient, but the response is too late. They can misjudge a patients' readiness to mobilize. A patient can be overambitious in his or her actions. A patient falls back in the wheelchair, on the bed or worse, on the hard floor. A nurse can carry the responsibility for several potentially self- harming patients simultaneously, but she or he cannot be in every room at the same time. Curing then becomes an alternative to prevention. While these situations happen frequently, they most often do not end in physical harm.

> *"While she's talking to Jochem [in the hallway, JT], you hear noise coming from one of the rooms and Fiona rushes over. She looks into the bathroom of the "pituitary patient", who is standing there calmly on his feet - it was a shifting stool that made the noise. Relieved, Fiona makes a brief conversation with the patient as she escorts him back to his bed."*

In the incident type reviewed thus far, one thing becomes predominantly clear: Being alert and ready to act, to prevent patients falling or otherwise hurting themselves, over time becomes a second nature for nurses. This helps the nurses to take deliberate actions in preventing incidents, or remedying or mitigating the consequences. Having this attitude and acting on identified risks reduces the (perceived) chances of an incident happening. As we saw, this is not only a matter of purely protecting a patient, but also working in concert with them.

This makes nurses' assessments of what constitutes reportable incidents difficult, however. Being continuously vigilant, watching patients and being apprehensive toward mishap as an integral part of normal work questions the value we can grant toward incidents as unique events. What value does reporting these ordinary aspects yield, if efforts are already made to prevent them? How would one know if an incident is prevented? It forms an explanation for the difficulty seen earlier in producing accounts of preventing incidents (or even defining what constitutes an incident).

If we re-emphasize which incidents indeed can be *prevented*, now not only the paradoxicality of the question confronts us, but also the realization that preventing self- inflicted patient harm might not always be within the power of the ward nurses. Besides all the preventive efforts the nurses take – despite their structural vigilance, i.e. their second nature - apparently not all incidents can be forestalled. Admittedly, the considerations around incidents reviewed thus far refer mostly

to nurse-patient interactions surrounding falls and self-harming behavior of patients. Perhaps the category of medication related incidents – as a clear instance of incidents that happen as an effect of multidisciplinary collaboration – might offer a different view on what incidents are and what would be worthy of reporting for nurses.

4.3 Nurses, physicians and medication errors: incidents and collaboration. Medication error is the second category the ward nurses refer to as incident types. These types of incidents can tell us more about situations in which a patient has to be protected not against themselves, but against risky treatment processes. Here, (inter)professional collaboration is of significance: traditionally, physicians prescribe medicine and nurses administer it to patients – a fundamental process in hospital treatment, which over the past decades has transformed from paper and verbal communication to digital systems. What do incidents in this process mean? Here, we might take a closer look on how medication errors occur on the ward.

For the nurses, the medication process starts when a physician prescribes a medicine in the electronic patient records. During the night-time shifts, the on-duty ward nurses check the medication distribution tab and put the medication for the next day in a patient specific tray of the medication kart. Prior to administering medication to a patient the next day, the morning and evening shifts again verify the medicine in the trays using the administration registration tab to see if no mistakes have been made during the night. If a medicine is missing or has to be administered ad-hoc, the ward nurses ask a fellow nurse to check their medicine and intentions, again to make sure an extra set of eyes has seen the medication before administering it to the patient. The patient in turn also has a play in this process, as a nurse comments, "most patients know best for themselves what they are using". For instance, medication taken at home has to be checked and matched with hospital treatment related medication. With three different nurses in 24 hours and even more throughout the week, the patient and his or her family also take a final but important controller-role in the medication administration process. But a lot of simultaneous activities can be happening on a ward and colleagues can behave unpredictably. The nurses have to remain sharp and pay attention to their own processes and that of their colleagues:

> *"On the ward, I think we often intercept things. Like medication being prescribed incorrectly by the doctor, um… Or intercepting things from new colleagues, (…) for example: you are called that someone has a potassium level of 6.2, and [meanwhile, JT] a colleague was going to administer a potassium infusion. Those are situations*

where you think [by yourself, JT], if you're going to do that, you can also already arrange an ICU bed because the patient won't survive this. Um.. but yes, you catch that passing in the hallway or something (...) But that does happen. Yeah."

Watching and correcting colleagues seems also integral part of working on the ward. Junior nurses and students learn the tricks of the trade under supervision of senior ward nurses. The seniors give tips and challenge students to work independently, while preventing incidents: For instance, when a student helps a patient with mobilization or when the student suddenly lowers the bedrails. Under the guidance of their supervisors the nursing students learn to estimate the consequences of their actions. Sometimes things are going only just right in this learning process. In the process of medication administration, students, new colleagues and senior nurses alike, always have to be vigilant toward flawed and faulty prescriptions:

"Yeah, yeah, exactly... because then you have those young graduates [recently registered nurses, JT] who don't really know how it all works yet, but are distributing pills, and do not see that mistake..., Look, I will catch that mistake from the prescription, I know what a patient should get after a burr hole. But if you do not know that a patient still needs antibiotics for 24 hours afterward, and the doctor did not prescribe it, then the patient has not received it, and you only find out about it two days later, and that is a bit of a shame because complications could arise from that..."

Since their frame of references is still developing, less experienced nurses have a harder time to recognize if a prescription is missing a certain medicine or is written in the wrong dosage. This highlights the importance of good prescriptions, and the cooperation between physicians and nurses in preventing incidents in the medication process. Medication errors can significantly disrupt nurses' workflow. But a nurse correcting missing medicine also prevents bad patient outcomes to arise.

In light of our question, concerning what medication errors mean for how incidents are seen, a more comprehensive picture emerges about how incidents occur and are prevented through collaboration in treatment processes. As we see, the nurses are sharp in detecting potential mishaps in their own work, but also in that of their direct colleagues. Experience matters a great deal in this respect. Nursing students and junior nurses need to learn what signs of potential mistakes they should look out for, and know how to address these appropriately. Checking the adequacy of a prescription might cost extra time, however it buys safety. Here,

we see that the nurses act as a safety net in concert with the medication system: not only for themselves, but also to prevent incidents instigated by colleagues and physicians. But this also raises the question how their position relates to the efforts of other professions on the ward: are the nurses the only safety net?

Interestingly, physicians on the ward remarked that they too correct missing medicine when they notice that a fellow physician has left it out from the prescription. Some of the physicians commented that they actually prescribe missing medicine (e.g. fraxiparine) to prevent incidents from occurring, although you can never be sure that it indeed prevented an incident:

> *"So those are things that you do, where you do take steps to prevent things, and then they don't happen. Did you prevent it then? Maybe it never would have happened in the first place. [...] But you do have the feeling that in the broader sense, if you do that a hundred times, that you do prevent some things, but you can't measure it."*

Paramedics on the ward (such as physiotherapists, speech therapists and occupational therapist) likewise prevent incidents in collaboration with the nurses: for instance, giving tips about preventing pressure ulcers in certain cases or catching a falling patient by chance. However, when prompted, the physicians and paramedics likewise struggled to articulate how they explicitly prevented an incident:

> *"You're not always aware of that, I think. You would have to be very intend on it, that you've prevented something."*.

The fact that physicians and paramedics alike are keen on potentially dangerous situations and faulty prescriptions illustrates that both nurses, physicians and paramedics create safety next to the medication systems in place. Conversely these professional groups are also at the onset of potential incidents. What do these insights about teamwork mean for incidents and incident prevention? Nurses, physicians and therapist alike seem struggle to explicate when they explicitly prevent incidents. Considering that watching out for each other – i.e. incident prevention – is part of normal work, perhaps this is – yet again – not surprising.

From the perspective of a nurse, a medication incident is not only an identified procedural mistake, it also signals that something is amiss in the communication with the physician. Coordinated teamwork, both in communication and matched expertise, seem necessities to deliver safe care. It leaves to wonder if indeed such aspects are addressed in using the reporting system on the ward.

Thus far, we have delved into the question what nurses perceive as incidents as part of their daily work routines. Concerning what incidents truly are, we saw this is very hard to articulate – not only for the nurses involved, but also for physicians and therapists. This can be attributed to several reasons. Firstly, an *incident* as an isolated concept is backward looking – only after its occurrence and label, it is manifested. Consequently, the concept becomes paradoxical when placed in a future state and loses meaning – it becomes a catch-22. Secondly, *incident prevention,* is an integral aspect of normal work on hospital wards. Here, incidents become more of a continual risk assessment. The work of nurses we have discussed involves a continuous state of vigilance for potential mischief as a second nature – be it in patients, colleagues, students, physicians or other sources that could potentially degrade the level of patient care. This state of vigilance refers to keeping and overview of what is the right thing to do for a patient in terms of clinical and nursing related aspects (i.e. is there appropriate expertise in individual caregivers involved with a patient) or in the processes coordinating patient treatment (i.e. does the communication balance the varying levels of expertise). Both aspects of incident prevention however refer to an identified and perceived risk by the nurses in the past or the future, that in one way or another needs to be addressed. Given that risk assessment and incident prevention are part of normal work but are also hard to specify, it remains to be seen how the reporting system contributes to these aspects and achieves improvements in patient safety on the ward.

4.4 Agreement and consensus: the integration perspective. In the previous section we have seen that for nurses it is often not apparent what an incident – to be reported – is. At the same time, we saw that some incidents are perceived and reported, particularly surrounding patient falls and medication. In the upcoming sections we delve deeper in the question why - for which goals and reasons - incident reports are made by the nurses, and what meaning is attributed to the subsequent analyses and improvements made on the ward. In order to do this, we use three analytical lenses toward culture. In the first section, the integration perspectives guides the data and subsequent interpretations, offering clarity on the circumstances of reporting, the general information flow surrounding reports and the shared beliefs of the nurses about the potential merits of reporting. Here, we seek to answer what shared perceptions and social actions of the nurses surround the reporting system, and legitimate its existence by means of consensus and consistency

Incident reports are made by the nurses and physicians on the ward. For this they use a standardized reporting form. Reporting is anonymous and voluntary, based on the urgency and value perceived by the reporter. The ward nurses seek a suitable moment to make a report during daily activities – patient care comes first. Typically, reporting is merged with other administrative activities in the hour before the handover, during moments of calm, or in all haste during otherwise chaotic and busy shifts. However, the amount of requested information and pre-specified categorizations in the reporting form can form a barrier to reporting. As one nurse was observed to comment while reporting missing fraxiparine in the prescription at the end of the shift:

> *Cindy says, "It is good that you are reporting this, girls!" and Vivian suggests that Truus should also report the medication issue with patient 3, who was not transferred from home medication to the administration registration in the morning. Truus remarks somewhat irritated that she already spent 7 minutes making the first report. "No wonder nobody fills this in" she adds.*

More senior nurses, team leaders and physicians are especially concerned with the incident reports, as we see from the existence of meetings and groups legitimating the practice of reporting incidents. After being filed, the reported incidents go through a loop of committees, meetings and newsletters (see appendix A). First, the incoming reports are reviewed by a nurse-led decentralized reporting committee on the ward, supported by one of the nursing team leaders. Analysis is done by determining the severity of harm to the patient, and color coding the frequency of the incident (common, uncommon, or rare). In the rare event that the harm to the patient is severe, the case is escalated higher up in the organization. If harm to the patient is not severe, the report is closed. In both situations, the reporter receives an e-mail notification that the case has been reviewed. The value of this notification is however questionable. Often it remained unclear to the reporter what actually happened with their report. As a team leader and former ward nurse commented during an interview on how the reporting system contributes to learning on the ward:

> *...But usually you just get an email, "has been handled." So what is really the contribution that I report it, that's kind of the question. And I think that's also the kind of the consideration everybody makes. Because how much does it contribute if you then only get an email "has been handled". A lot of people don't see the bigger picture (...) And although we try to tell them, many people still think, well, nothing will happen anyway. It will be fine. So they just don't report it.*

Frequently reported incidents are discussed during the wards' monthly quality committee meeting. Historically instigated by nursing management, the committee seats two nursing team leaders and three to four senior nurses, as well as the wards' physicians assistants (3 to 4) and both chief clinical officers of the neurology and neurosurgery specialties. In this monthly meeting lies the gravitational center of quality work on the ward: it is here where hospital quality instruments and individual concerns shape the discourse about the current status of quality and patient safety on the ward. The meetings are held midweek early afternoon, about an hour and a half before the nursing handover starts. Around this time, the dayshift nurses are busy tying up their activities as not to carryover work to colleagues of the evening shift. The committees' nurses regularly come a bit too late or come an hour in advance before the evening shift starts. The physicians, often having responsibilities elsewhere in the hospital, occasionally arrive after the meeting has started, leave early or are phoned away. The physicians assistants and team leaders were most often present, reminding and fetching each other at the day of the meeting. It is in this quality committee where initial multidisciplinary discussions take place about possible causes and potential solutions to reported incidents. Although other incident categories were reported, almost exclusively patient falls and medication errors reached the discourse in the quality meetings (see appendix B).

Feedback and communication about analyses initially remains almost exclusively between members of the committee. Quarterly team meetings offer a platform for the reporting committee to share insights and discuss the type and frequency of reported events with the nursing team and communicate what improvements have been devised. Such meetings are also the prime moments to discuss the value of reporting in general:

> *At a team meeting, a discussion was noted between a nurse and a nursing team leader. The team leader was calling out to the nurses to keep registering medication incidents. The team leader gave an example about badly distributed medicine during the night shift. One nurse commented that when he finds a missing or wrongly distributed medicine in the patients' medicine tray, he addresses this to his fellow colleague of the night shift if it happens two nights in a row. "Why should I report that? Isn't that the whole purpose of the second check?"*

Considering that reports are made voluntarily, using extensive forms during patient care, it remains hardly surprising that some events go unreported. Combined with the questionable – or lack of – direct feedback on their reports,

the process of incident reporting can understandably feel unsatisfactory for the nurses. One could wonder: For what goals and reasons do they keep making these reports? Here, we take a deeper look at the underlying shared beliefs about reporting.

Individual nurses mentioned that although not everything is reported, the act of reporting in itself is a good thing: it shows where problems are and contributes to learning. Although not everybody might be aware of the value that reporting has, it was frequently expressed that making reports shows the current state of affairs, and points to directions for further improvement. As one nurse noted, during an interview on the value of quality instruments for learning the nursing trade on the ward:

> *"IMS (Incident Reporting System, JT) gives us insight into where there are shortcomings. If people do make reports that is, but it gives insight into where there are shortcomings. And based on that you can make improvement plans."*

During the team meetings and in both newsletters, frequently the team was urged to keep reporting so insights can be gained and improvements can be made. At the same time, some nurses and team leaders doubted the presence of a reporting culture. Often it was said that not everything that could be reported, was actually reported. As one team leader mentioned during a one-on-one conversation about incident reporting on the ward:

> *"She receives an average of 2 reports per week. This number sharply contrasts with the paper-based methods that have been experimented with to make reporting easier. At the time, you could see that the number was around 15 per day (...) She indicates that there is no reporting culture in the hospital, which was more prevalent in the peripheral hospital where she came from."*

Taking on an integration perspective toward culture, we now see how the meaning of the reporting system is constructed by ways of shared beliefs and understandings. Although not all nurses are equally engaged in reporting and efforts remain to increase the amount of reports within the team, the arguments why reporting is not on the desired level yet reveal the common goal for using the reporting system in the nursing team: reporting gives overview and contributes to learning, even though the circumstances for reporting are not always ideal, and not all events are reported. The meaning of the reporting system here is thus one of agreement, of a shared belief about the potential merits of reporting. The idea that more reports

are better than no reports, and that reporting *should* be done better, underscores the common understanding that reporting in itself is a good thing to do. It gives an overview, a glimpse into the otherwise elusive state of incidents on the ward. And, it shows were improvement might be sought, and thus offers the nurses a sense of control over the incidents happening on the ward.

4.5 Responsibilities and power in conflict: The differentiation perspective. In the first sections we saw how incident prevention is a collaborative undertaking of daily ward care. Through the previous section we now also see that both nurses and physicians are represented in the quality committee handling the incoming incidents reports. This raises the question how the collaboration between nurses and physicians influences not only the reporting tendencies, but also the use of the reporting system. We formulate an answer by taking the differentiation perspective toward culture as our analytical lens: what reasons and goals are there in these subgroups to use the reporting system, and where might these conflict?

In the case of fall incidents, reporting by nurses is done retrospectively; i.e. after a patient has fallen. Physicians additionally register these cases as complications when a nurse brings this up during ward rounds. Such reports are focused on detecting unwanted outcomes of care. Medication incidents are a different story.

Reported incidents in medication could refer to an error in the preparation or administration of medicine by nurses, or issues with the prescription made by the physician. Most nurses solved these issues by alerting the relevant nurse or physician about the mistake later on. However, the prescription errors were more often than the others also reported as incidents. Discovering a faulty prescription could evoke frustration in these nurses. In such instances, they were noted to encourage each other to report such events:

> *During ward rounds, it was noted that a nurse alerted a physician that a dosage was written in a confusing manner. The present team leader directly stated firmly that the nurse should report the incident. When the researcher joined a coffee break with the physicians later that morning, it was discussed that they didn't make a big deal out of it to avoid a big discussion. Most of the physicians thought that the nurse should be able to have the clinical insight that the writing was an example to calculate the right dosage, not the actual dosage which was written beneath. An incident report in this instance was believed exaggerated.*

Interestingly, the two incident types seem attached to either one of the two medical specialties. On the ward, it was thought that fall incidents were more common among neurology patients and thus a concern to be taken up with the neurologist. Medication incidents on the other hand were equated to the neurosurgeons. It was a commonly held belief among the nurses that the neurologist were better at prescribing medicine than the neurosurgeons. As one nurse with more than seven years of experience on the ward commented during a group interview on medication administration:

> *"And what I notice especially, based on personal experience rather than numbers, is that errors occur more frequently with the neurosurgery than the neurology. So, medication errors happen more often, in the way they prescribe it, than with the neurology."*

The ward was a combination of the neurology and neurosurgery specialties. Historically the two wards were separated, but they had been merged some fifteen years ago with the creation of a neuro-medium care shared between the two specialties. Some nurses still favored to work solely on this neuro-medium care, while others wanted to work only on the ward. In addition, some nurses had a strong preferences for caring for the often reliant, unresponsive or unpredictable neurology patients, while other nurses preferred the elective protocolized care for the more approachable, less dependent surgical patients. As one nurse who worked on the ward for over 30 years explained, the effects of these developments continued in the nursing team to this day:

> *"...you have two different cultures, you have the culture of neurology and the culture of surgery, internal medicine and surgery. And that really had to take form... and sometimes you find yourself in a somewhat similar situation here, because you also have the neuro medium care, plus you have the ward, but the ward also consists of two cultures, so you are essentially dealing with three cultures in broad terms. And you have to navigate between them"..."*

The difference between the medical and surgical specialties also came apparent in the collaboration with and between the physicians. The neurologists were viewed to be more prudent and decelerating, with a tendency to make plans and weighing options before making a decision. The surgeons were seen as more decisive and pragmatic, having a tendency to solve problems immediately when they appeared. Whereas these different styles could make the cooperation between the physicians harder (e.g. when a bed had to be borrowed from the other group), it also had an effect on the nurses: they were seen as distinct third group with their own responsibilities, such as staff availability and sufficient skill in the team.

In the quality meetings, the different groups were palpable in the conversations, seen in the places where everyone was sitting, the "us-them" style of speaking and the assumptions about interests and responsibilities of the other groups. The meetings were marked by finding a cause or solution to quality topics, but these talks were often also focused on whose responsibility got exactly affected and consequently who had to do something with it. This also applied to the concerns about patient falls and prescription errors on the ward. For instance, it was noted that a neurology physician was worrying about the quality of the nursing team, in reference to a currently admitted patient who was severely cognitively affected and had fallen multiple times"

> *"...The next point of discussion is bed pressure. Everyone briefly shares their thoughts on how their own interests are important (acute flow and planned flow), but more time is spent discussing the nursing team. A team leader indicates that it (the roster, JT) is really tight at the moment (...) with 17 new students, who also demand a lot of attention from the more experienced nurses. (...) In line with this discussion, the PA (Physician Assistant) starts talking about the quality of nursing that she is concerned about. She cites an incident during the morning with physical restrains as an example: 'Mr. X had already fallen 3 times in the past 24 hours: yesterday, and then I hear this morning that he has fallen twice again. And when I arrive, they just put him in a chair in the hallway, while he needs a low stimulus environment'. The team leader responds that when they put him in the room, which happened shortly afterwards, he is no longer in sight, making it difficult to notice if he falls again. The PA says that she then told the nurse to request a posey bed for that man, to which the nurse looked at her sheepishly and thought the PA should do it'. 'No, YOU should do that', the PA says, paraphrasing".*

The neurology physicians sometimes had concerns about the capabilities of the nursing leaders to keep addressing and commit to earlier made agreements on the ward. The neurosurgery physicians on the other hand were less inclined to board up all work processes. Nursing management and leadership on the ward in turn were tasked with keeping a workforce of 80 nurses informed and on board with made agreements and changes or had to solve problems ad-hoc (e.g. keeping beds closed because the on-duty workforce was out of balance with the intensity/level of patient care, or ringing up new nurses when sick leave puts the team under pressure).

Now we see that nurses report incidents to either signal an error by the physician or a fellow nurse in the *process* of medication, or by registering unwanted *outcomes* of care in falls. Interestingly, the conversations between the three groups are not

necessarily instigated by the reported incidents, and can also be seen as solved by giving feedback to the concerned colleague. It leaves to question: what place does the reporting system get in the collaboration between the nurses and the two groups of physicians?

The topic of medication errors showed that reporting tendencies, interpretations of justified reporting practices and believed implications of reporting also took form by the distance between the subgroups. During a team meeting half a year before the continuous improvement meeting with the physicians, it was already discussed between the nurses that not all medication errors are reported. In the same week, the nurse made newsletter on the ward stressed that:

> *"The prescribed medication isn't always correct. There's a lot of grumbling about this, but even more often, no incident reports are made, whereby we cannot make it visible. Then it becomes difficult to address. On Friday, 5 reports were made about medication prescriptions. We appreciate your help so that we can improve this together."*

Several senior nurses believed that badly inducted new physicians were the cause of inaccurate prescriptions. Systematic increases of medication reports were hoped to increase attention on accurate medication prescription on the ward, and the neurosurgeons especially. After the neurosurgeons had started their efforts to improve prescriptions on the ward, the reporting committee kept urging the nurses to keep reporting as the medication errors were still, and increasingly, occurring. The quarterly newsletters were filled with text such as "the more reports, the better we can provide insight into bottlenecks" and "thanks for the many reporting last quarter!" This also seemed to influence how the nurses saw the reporting system. As one nurse explained during an interview about learning on the ward, in response to the question if she has a clear view on why she makes a report:

> *"Yeah, we know how the process works. But of course, you need to have a number of reports if you... really want to bring about change. It depends on the incident, obviously. But for example, what we have noticed is that, at one point, we had so many medication errors from neurosurgery, something was really done about it based on those reports."*

But the physicians, and neurosurgeons especially, were not always charmed of using the system in such a way. At times, the physicians did not respond to forwarded mails of the nursing team leaders about medication incidents. While some nurses

stated that in the end, it is the physicians' responsibility to prescribe medicine correctly, some physicians acknowledged that this is not always possible because throughout the day, other concerns deserve more priority (e.g. when seeing a patient on the emergency department nine floors below, or helping the surgeon during a complicated procedure in the operating room). As one physician explained, the reporting system on the ward however does not appreciate this aspect of hospital care processes:

> *"Because now you often see that you prescribe things, and then it turns out not to be correct, and we say 'Oh, that's wrong, Oh,' then we make a report and say, 'Well reported.' But actually, I would say it's a Swiss cheese model. And I think, instead of all of us looking at each other, wondering if we're all doing it right or all doing it wrong, we just look at each other and ask, 'Is it correct?' And that includes, that sometimes you see wrong things."*

Against the backdrop of medication administration, we now see that incident reports are made by the nurses as a signal that prescriptions are not up to standard and should be improved. However, also different interpretations and perspectives exist between physicians and nurses considering what is worth reporting, and what not. Perhaps, these perspectives are informed by the different roles these practitioners take in the medication process: medication prescription here is seen as a responsibility of the physician, and stimulating the nurses to make reports helps the nursing leaders to put it on the physicians' agenda. The functioning of reporting and the reporting system now morphs into an instrument aimed at the different responsibilities around patient care on the ward. The nurses, signaling that errors in prescription disrupt their workflow but can also deliver potentially dangerous situations, try to address these issues by making and urging for reports – reporting here, becomes a burden of proof against the physicians to improve their prescription accuracy. The physicians, in turn, have their own worries about the nursing group but they do not use the reporting system perse to address these issues. The reporting system thus becomes an instrument of the nurses; It becomes a system of gaining traction to point out by which group the errors lie, and who carries the responsibility to work on improvements.

In the differentiation perspective, the functioning of the reporting system here is guided by the distance between the subcultures of the physicians (neurologists and neurosurgeons) and the nursing team. It shows that there are different interpretations about what the reports should or should not do, what is worth reporting and what is not, and who should step up their game as a consequence. 'Voluntary reporting' takes on a different meaning in the nurses' struggle for attention. It shows how the

group of nurses use the reporting system to gain credibility and power to confront the groups of physicians with their behavior, and try to force them to act. Now, we turn to what comes from these reports, that is, how the reporting system contributes to improvement of care on the ward.

4.6 Fixing to solve, or solving to fix? The fragmentation perspective. In the previous sections we have seen from which shared beliefs nurses make reports, and how opposing reasons and goals for using the reporting system shape the discourse surrounding incidents and reports. Earlier we already saw how risk assessment and preventing incidents is also part of normal work, and that it is quite hard to decide what an incident truly is. Yet how then, does this system produce improvements, if multiple interpretations of reports and incidents are at play? To address these ambiguities, we use the fragmentation perspective toward culture: looking at the contradictions in the level of consensus and ambiguities in perspectives and social actions within and between subgroups of nurses and physicians in their reasons for using the reporting system. We start with an increase in reported incidents, as this commonality puts incidents on the agenda of both subgroups:

When an increase of reports was noted, the incidents were first discussed between the nursing management, team leaders and reporting committee, through email or in the hallway. Also, the topic could be brought onto the monthly quality meetings' agenda for discussion with the physicians. During these meetings, attendees mostly thought about the cause of the noted increases, whilst also already thinking about how potential solutions could be achieved. In these discussions, often single patient cases from recent situations on the ward were brought into the conversation. However, questions about how these single cases could have happened, what the general underlying cause was for the increase in incidents reports, or what should be done to prevent future incidents often became intermingled.

For instance, fall incidents often got intermingled with the use of physical restraints on the ward, which then became the main center of attention rather than the initial fall incidents. For instance, when the quality committee was reading into a newly implemented quality care dashboard:

> *It is discussed that sometimes a patient has a high risk of falling, which can be an additional argument for using physical restraints next to confusion and other potential self-inflicted harm. It is decided that the physicians will re-inform their residents about discussing restraints during wards rounds, whereas two nurses will try to create awareness in the team.*

In regard to fall incidents perse however, the group state that they don't recognize the numbers and can't really tell what they should do with them. In the following weeks, the wards' newsletter is filled with tips, tricks and considerations surrounding physical restraints, associated complications, bed rails and falls.

The discussions about causes and solutions were also complicated by arguments for over- or under registration, and the distance between the nursing leaders and physicians. When medication errors were discussed, the nurses argued that the increase was moreover an under registration, amplifying their cause to the physicians. Increases in falls were often accompanied by remarks that it could also be a matter of over registration, and perhaps a comparison with the registered complications could be done. While the nurses on several occasions stressed that they wanted to get involved with the complications as registered by the physicians, this was for the most part held off by the physicians. According to the physicians it was very difficult to retrieve the complications from the EPD to compare them with incidents, and they had doubts if it would be useful to have nurses attend the morbidity and mortality conferences.

Some improvements were suggested during the quality meetings (e.g. asking the satellite pharmacy for help, approaching the restraint committee for help), others were already instigated by the reporting committee before they were brought into the quality meetings (e.g. organizing clinical lessons in fall prevention, alerting nurses on medication errors through the newsletter). After the start of the continuous improvement meetings, solutions and improvements toward incidents were centralized here. Although these meetings leaned more towards creating, testing and evaluating solutions rather than thinking mainly about potential causes, the same pattern of switching between analyzing the problem or coming up with a pragmatic solution leaded the discourse. For medication incidents, the discussions often quickly merged with the use and design of the EPD. Causes and solutions for medication errors were initially sought in this direction, since this was the main way of communicating prescriptions between the two groups:

The manager then responds again, pitching an idea that perhaps something could be done about the field. It goes on for a while about a solution in hix. The physician adds at one point that they sat down next to the assistant, but that sometimes it seems like the system still gives wrong information (such as putting in an amount of hydrocortisone, but then it shows 0 in hix). The team leader says they need to give it some time, and moves the evaluation date forward again, to May. People don't really seem to know how to proceed now.

However, such solutions could easily take several months to get in consideration at all: first approval needed to be granted from higher-up in the organization, again through loops of meetings and committees. Solutions in the EPD therefore mostly sticked to suggestions made by the health professionals on the ward rather than real changes in the EPD.

After 5 months of trying to reduce the now heavily campaigned incident reports of faulty prescriptions, the nursing team and neurosurgeons had to conclude that their intervention had not delivered the desired decrease. In the quality meeting one week later, a senior nurse explains on behalf of the ward physicians that they often lack time and priority to prescribe appropriately. Then, the two groups decide to make new work agreements: the ward rounds will be revised to take a moment separate from the patient (paper ward round) between the nurses and the physicians to check if the treatment policy and concerns of the nurses are aligned. In turn, the nurses cannot phone the physician for every little question. According to the manager, "the nurses will keep making incident reports because also mistakes can be made within the chain ward-operating room-recovery room-ward". After two months, it is said during the team meeting that the new ward rounds corrects medication mistakes and the nurses seem modestly positive. Even though, the quarterly incident newsletter still states that "the nurses still need to be sharp on, checking what you sign off with a colleague and give yourself, and if you have doubts about a medicine you can ask a colleague for help, or a physician if need be".

The fragmentation perspectives offers the view that the activities with reporting system do not follow a simple straightforward path, but quite often remain unclear and ambiguous in their goals. Earlier we have already seen that the nurses use the reporting system to improve and provide insight, but also as a crowbar – of one group attempting to bend the dominant position of another group. Against the canvas of the group dynamics on the ward, we now see that the discourse around incidents also becomes obscured by diverging reactions toward the matters at hand. Should efforts be directed at uncovering the underlying causes of increased incidents, thus further analyzing the problem? Or are the incidents a sign of ill quality of care, and should improvement immediately be organized?

Complicating the matters, in the group discussions incidents got often intermingled with adjacent topics, drifting the conversations away from their starting point and sometimes getting lost or bogged down inside branches. It leads to moments wherein incident numbers do not resonate with the perspectives of the health

professionals, or result from the paradoxical stimulation of reports while trying to lower their incidence. Then again in other moments, putting something on the agenda seems a solution in itself. At times, it leaves to wonder what exactly results from the incident reports.

4.7 Incident reporting and its various contributions to patient safety: bounded in ambiguity?

After viewing the integration, differentiation and fragmentation perspectives, we yet have to see how the views, discussions and social actions surrounding the reporting system accumulate in improved patient safety on the ward. To answer this question, we use the lens of bounded ambiguity. Ultimately, a frame of reference is needed to clarify how the earlier explored perspectives and social actions congregate to make patients safer. The IRS offers such a frame, by magnifying aspects of the nurses work as incidents, and stipulating them as subsequent sources of improvement. We will hold on to this frame by looking at previously explored meanings of incidents and reporting, and take these into consideration when looking at the benefits for patient safety on the ward. We continue by once again looking at patient falls and medication errors, and start with the question: what reasons and goals are left for using the reporting system on the ward?

The increases in fall incidents over the years had instigated clinical lessons, which were commented by the nurses as good refresher moments for senior nurses and learning opportunities for junior nurses, with very handy tips from the physiotherapists. But at the same time, it is also acknowledged that "falling isn't always possible to prevent". The reporting committee states this in one of their newsletters, after writing months earlier that "still too many patient fall". Besides clinical lessons, technical solutions were also instigated by committees outside the ward context. However, these efforts do not resolve the ongoing issue of falls incidents. As one nurse explains about incidents and falls on the ward during an interview on learning:

> *"Some problems cannot be resolved, such as, the risk of falls. Practically everyone here is at risk of falling because half of them lack insight into their illness, and we can't keep everyone in a tent bed [posey bed, JT] because then they can never get out [of the ward, JT]. But yeah, thanks to fall prevention, we did get those fantastic tent beds (…) and since then, we have become frequent users of tent beds."*

For medication incidents, the nurses think that physicians are responsible for prescribing medicine. On the other hand, the nurses also routinely fish out errors, or have to wait for hours for a prescription in the EPD, and do not always make

a report out of this. Sometimes the nurses argue that they understand that the physician can be busy with more pressing issues. Yet, when closing down on a shift and handing over work, or if the same prescription errors keep occurring, the nurses can become frustrated and use the reporting system to address these irritations. But then again, not all nurses were comfortable with using the reporting system is such a way. As a nurse of the reporting committee explains to the physicians during the improvement meeting, there is a case of underreporting because of this:

> *Fred also states, as one of the few times that the nurses say something, that it probably also is a matter of under-registration, because there is an atmosphere on the ward "of not wanting to report because it feels like … betrayal ". "Also to the doctors? Hmm"… says Bella (physician) to this."*

Betrayal here, refers to the perception of physicians and nurses that incident reports are accusations directed at individuals rather than a systematic method for finding improvements in care processes. As a senior nurse working for over twenty years on the ward explained during an interview on learning the nursing trade on the ward:

> *" I do believe in the reporting system, you know, and coincidentally, we now have a fairly active reporting committee, so things are being brought to the table again (…) I think as a nurse, you can learn from others, not just for yourself, but also as a team. And, what should you be alert on, and things like that (…) But there's a kind of negative connotation, I think, surrounding reporting. I don't experience it myself, but people often find it negative. (…) like, if a patient falls out of bed, then you're going to make a report, then it seems as if I did it…"*

While the health professionals on the ward seemed to be continuously engaged with safe patient care, their quality meetings were marked by last minute location changes, interruptions of treatment or care related calls, concerns for present patients, hospital wide developments or equipment and staff related issues (e.g. how many patients could be admitted that day). The health professionals did not seem all that motivated to work with quality and safety instruments, in the sense that, they were seen as an addition to their work. Learning, like other concerns that touched upon the care processes behind the incident reports, often remained outside the window of the reporting systems' legitimacy.

During the discussions around the medication prescriptions, it was proposed that either the EPD or dysfunctional assistants were the reasons for the increase in medication errors.

What was not communicated through the normal channels of the reporting system, were the concerns of some nurses and physicians about understaffing. Understaffing makes it harder for the physicians to prioritize medication prescription over more pressing patient matters during the day. While bad prescriptions were according to some nurses and physicians caused by new dysfunctional physicians, a nurse who worked on the ward for almost 30 years already commented at the start of the fieldwork that this is more of a recurrent pattern:

> *"You know, with medication safety, things do come up where I think, okay, now you have to immediately prescribe a report, since with medication, of course, things can go wrong. In dosages. And we've certainly noticed that in the past, that a misplaced comma can just, well, have big consequences. If you register that often, you make it more transparent and hope that it increases awareness and that the registration of, for example, prescribing medication, is scrutinized. But yeah, you know, then there's a new group [of physcians, JT], and then instead of 12 milligrams of dexa, it says four tablets. You know, I'm just saying something. Maybe we'll address it easier among ourselves, but some things just keep coming back. But as for the last time I prevented an incident, I don't know, really."*

When considering the reporting system through the three perspectives of integration, differentiation and fragmentation, we saw that multiple interpretations, reasons and goals surround incident reporting on the ward – either through shared or opposite understandings. Now we see that there are many more reasons and goals given to instigate a report, to discuss reported incidents or to think about potential solutions. At times these views overlap, contradict or have almost nothing in common except the notion that incidents can happen and through reporting further action is prompted. Taking on the lens of bounded ambiguity, it becomes clear that a lot of perspectives around incident reporting lack clarity: although action is taken, it remains ambiguous why these specific actions are taken, if patient care is made safer through reporting and what ultimate goal the reporting system strives to achieve on the ward. The purpose of the reporting system becomes fragmentized and depended on the views of the health professionals working with it, social group dynamics and other concerns on the ward. The ambiguity is to a large degree bounded, in the sense that having a reporting system is stimulated by the organization and is used by the health professionals on the ward to record events and outcomes of everyday activities. However, how exactly IRS contributes to patient safety remains questionable. While many efforts are prompted by the IRS, other concerns that influence these processes remain unacknowledged in light of incident reporting. At times, the idea that some incidents are not entirely preventable seems subcutaneously to the views surrounding the reporting system, and its legitimacy for improving patient safety.

5. Discussion

This paper set out to answer how the perspectives of ward nurses and physicians toward incidents, relates to their reporting practices and the subsequent contributions to patient safety on a hospital ward. For our first objective, we wanted to get a better naturalistic understanding of what nurses perceive as incidents as part of their normal work routines. Through our analysis, we saw that incident prevention is a continuous, shared act between nurses, patients, physicians and paramedics. In the coordination of safe care, medication errors show that incidents are not only prevented in one's own work, but also by being sharp on the activities of others. In preventing falls with the susceptible neurology/neurosurgery patients, the nurses demonstrate a learned form of structural vigilance to address these risks in concert with their patients. Reviewing both types of incidents shows that preventing incidents is part of normal work on the ward, which makes it hard to specify what does and what does not constitute an incident. Furthermore, it places questions on what events are seen as report worthy enough to be transformed into incidents by the nurses, and what motivations lie behind their reporting behavior.

For our second objective, we wanted to understand how different cultural perspectives explain the reporting behavior of nurses, and the functioning of the reporting system on the ward in general. Here we see that IRS seems to serve other purposes than solely learning from incidents and improving care. The integration perspective demonstrates that also reporting is done and reports are discussed for a shared desire for overview and a sense of control, relying on the idea that improvement can take place if reporting is done diligently. The differentiation perspective however illustrates that improvement is not the sole purpose for reporting; the IRS at times illustrates the unequal power relationship between nurses and physicians, becoming an instrument for nurses to gain credibility, pointing out responsibilities between the subgroups. In fact, the fragmentation perspective showed that many more motivations and beliefs are encountered for making reports and how to deal with them. At the same time, concerns related to the incident topics are also addressed outside the structure of the IRS. As a result, the direct contributions of the IRS to patient safety remain ambiguous and unclear on the ward.

The insights obtained through the thick description have implications for debates about the value of incident reporting in healthcare (Shojania, 2021), and across other industries (Havinga et al., 2021). These insights relate to the socio-cultural aspects of patient care on hospital wards, which IRSs have trouble to acknowledge.

This can be attributed to the reactive nature of reporting incidents, or the through IRS suggested stability of safety. While the IRS produces solutions related to future incident prevention, it remains questionable if such actually help or hinder patient safety in the future for two reasons.

First, because the concept of 'incidents' might not be suited for the work of nurses. Nurses provide significant effort to prevent harmful outcomes with their patients, accounting for these potential risks as integral part of their individual work activities, or as potential risks that have to be acknowledged and dealt with as a group. This finding highlights the paradoxicality of incidents as backward looking concepts; how would one ever know if an incident had occurred without intervening? Furthermore, our observations demonstrate that incidents can also be the whole result of using a reporting system; since incidents are reported and pertain morally objectionable events, the existence of the IRS is legitimated. When reports are made however, events that would otherwise remain value free or part of (in)formal learning practices, become stigmatized and take other shapes: as helpful instruments for idealized improvements, metrics for credibility or the reassurance that at least something is done about unwanted outcomes within the dangers of the ward care. While these forms of IRS have value in their own right, the actual added value for patient safety remains opaque since (1) process risks are already managed by frontline professionals in normal work and (2) the influence of IRS is depended on its achieved legitimacy in organizational decision making.

The second reason is that the IRS unfolds in not one singular purpose, rather in various forms and shapes arising from the social-cultural context it is used in. This begs the question if the IRS is a suitable instrument to improve patient safety, if its use does not naturally lead to learning. In fact, although the IRS taps on learning aspects of patient safety that address difficulties within the socio-cultural group dynamics of ward care, these cannot by recognized as such by the IRS. Such aspects, like the blaming tendency of nurses against physicians, are not scrutinized results from reports, rather they manifest in the general execution of the IRS. Moreover, it would take the health professionals on the ward tremendous effort to scientifically prove that their devised improvements are in fact, improvements.

Partly, this can be attributed to the observation that the ward is an open system in which groups of nurses and physicians, together with patients, are equally invested in trying to prevent incidents to happen in normal work. As such, the stability IRS suggest might not be present altogether, given the importance of individual clinical skill, coordination of care and teamwork in light of rotating health professionals

and in- and outflux of personnel. Given the inherent difficulties of incident prevention in normal work, an important consideration is to what extent the IRS is a helpful instrument for individuals and groups trying to achieve safe care on a daily basis, or actually obscures the realization of coordinated care and harmonious relationships between (sub)groups. The various forms of IRS suggest that, its use seems more directed at a sense of overview and control, a mechanisms for pointing out responsibilities or an illustration that something is done about frequent unease with the execution of care processes, rather than actual benefits for patients, nurses and physicians.

6. Conclusion

This study set out to offer a thick description on the perspectives of ward nurses and physicians toward incidents, subsequently exploring their reporting behaviour and the ultimate contributions of IRS to patient safety on a hospital ward. Our results demonstrate that the concept "incident" is unfavourable for the work of nurses, as many actions to prevent incidents are continually addressed as part of normal work. Taking on different lenses toward culture, we found that IRS in practice does not have an objective purpose in its own right. Rather, the use of IRS is shaped by contextual and temporal factors and social- cultural group dynamics between nurses and physicians. Moreover, although the use of IRS was stimulated, produced actions and delivered devised solutions, it often remained unclear how IRS exactly contributes to patient safety on the ward. Future studies in healthcare and other industries could benefit from thick description and ethnography as a methodology to acquire insights in the usefulness of incidents as a concept, the social-cultural dimensions of incident reporting as a practice and the value of IRS for improving safety.

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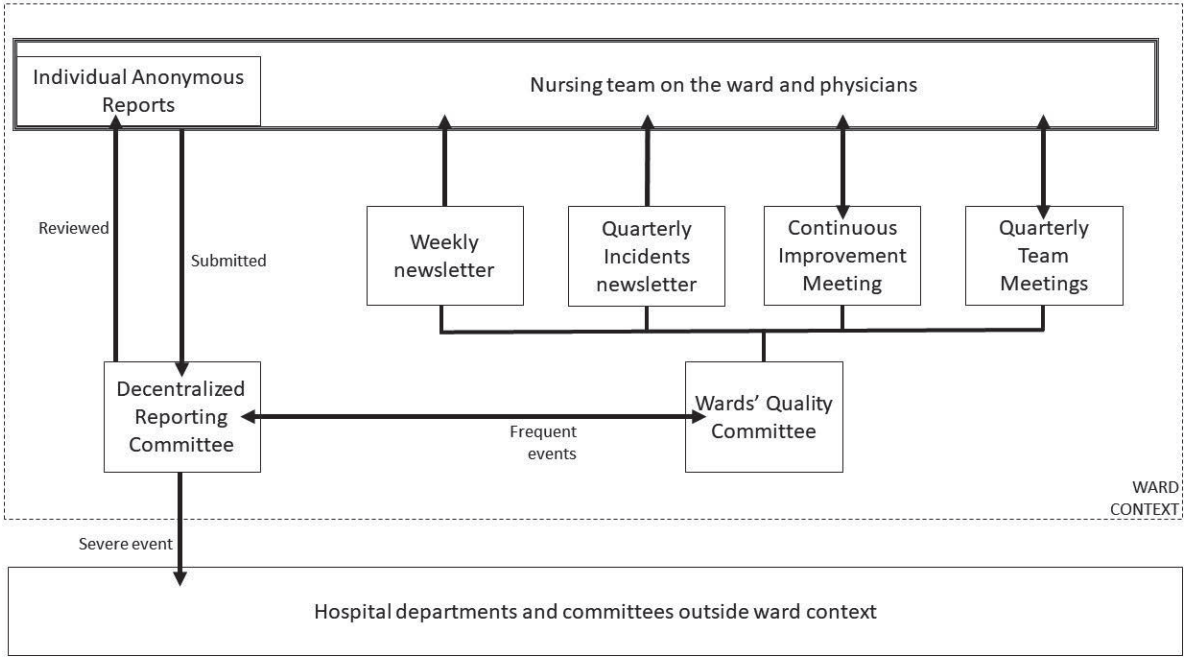
Appendix A



The incident reporting systems' information feedback loops. The solid arrows represent the routine flow of information stemming from the incident reporting system.

After a nurse submits a reporting form, the incidents are reviewed by the decentralized reporting committee. Severe incidents are escalated to the hospitals' quality department, frequent events are brought onto the wards' quality committee agenda. Analysis and discussions about these events goes back and forth between members of the reporting- and quality committee. Information is fed-back to the team through multiple routes: one-way through newsletters, or in dialogue during team meetings or the continuous improvement meetings, held directly after the wards' quality meeting.

Appendix B

	2020					2021					2022				
	Qtr1	**Qtr2**	**Qtr3**	**Qtr4**	**TOT**	**Qtr1**	**Qtr2**	**Qtr3**	**Qtr4**	**TOT**	**Qtr1**	**Qtr2**	**Qtr3**	**Qtr4**	**TOT**
Categorie															
Administratief proces	1	4	2	1	**8**	3	2	1	3	**9**	1	3	7	2	**13**
Behandeling van de patient	1	2	3	3	**9**	2	3	1	3	**9**	10	5	1	1	**17**
Bloedproducten	0	0	1	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**
Diagnostiek, laboratorium of beeldvormend	0	1	3	6	**10**	3	1	1	4	**9**	1	1	0	2	**4**
Ik kan mijn melding niet kwijt	7	2	3	4	**16**	2	6	3	6	**17**	2	4	6	8	**20**
Laboratorium incident	0	1	0	0	**1**	0	0	0	1	**1**	0	0	2	0	**2**
Medicatie incident	15	11	2	7	**35**	0	0	0	12	**12**	13	0	0	0	**13**
Medische gassen	0	0	0	1	**1**	0	0	0	0	**0**	0	0	0	0	**0**
Medische Hulpmiddelen	1	0	0	0	**1**	1	2	0	0	**3**	0	1	0	1	**2**
OK-centrum incident	0	0	0	0	**0**	0	0	0	2	**2**	0	0	0	0	**0**
Radiologie incident	2	0	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**
Radiotherapie incident	0	0	0	0	**0**	0	0	0	0	**0**	0	0	1	0	**1**

Vallen van een patient	7	10	13	6	**36**	23	4	7	9	**43**	10	11	12	13	**46**
Vervoer en transport facilitaire proces	0	0	2	0	**2**	1	1	0	0	**2**	1	0	0	1	**2**
Voeding	1	1	0	0	**2**	0	0	1	1	**2**	0	0	0	0	**0**
Ziekenhuisapotheek incident	15	11	2	7	**35**	6	15	17	9	**47**	11	16	6	12	**45**
Grand Total	**50**	**43**	**31**	**35**	**159**	**41**	**34**	**31**	**50**	**156**	**49**	**41**	**35**	**40**	**165**

Reported incidents per quarter over a 3 year period on the ward. Many types of incidents could be reported, but most attention was given to "medication errors" and "patient related falls". Very few other incident categories reached the discourse around reported incidents, or were communicated to the team. Only on two occasions throughout these years were individual reports noted as input for communicating risks on the ward through the weekly newsletter.