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Putting Safety in the Frame: Nurses' Sensemaking at Work

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Abstract

Current patient safety policy focuses nursing on patient care goals, often overriding nurses' safety. Without understanding how nurses construct work health and safety (WHS), patient and nurse safety cannot be reconciled. Using ethnography, we examine social contexts of safety, studying 72 nurses across five Australian hospitals making decisions during patient encounters. In enacting safe practice, nurses used "frames" built from their contextual experiences to guide their behavior. Frames are produced by nurses, and they structure how nurses make sense of their work. Using thematic analysis, we identify four frames that inform nurses' decisions about WHS: (a) communicating builds knowledge, (b) experiencing situations guides decisions, (c) adapting procedures streamlines work, and (d) team working promotes safe working. Nurses' frames question current policy and practice by challenging how nurses' safety is positioned relative to patient safety. Recognizing these frames can assist the design and implementation of effective WHS management.

Keywords

decision making; naturalistic inquiry; nursing; occupational health; risk, perceptions; social constructionism

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Introduction

The health care system is complex because of the multitude of interactions between people, information, technology, and the environment (Dekker, 2011). This complexity creates competing pressures for nurses at the front line of patient care. The "To Err Is Human" report (Kohn, Corrigan, & Donaldson, 2000) is a landmark work that called attention to the alarming estimated rates of patient harm due to medical error in the health care system. The report focuses on how human errors arise from the complexity involved in health service delivery and how they can be minimized through effective system design. Consequently, the "To Err Is Human" report has shone the spotlight on patient safety as an explicit priority for health care policy (Waring, 2009). Nurses must make sense of their complex and dynamic environment to safely and effectively perform their work (Dixon-Woods, Suokas, Pitchforth, & Tarrant, 2009). Decision making is thus driven by the needs of patients and is often embedded in the patient care process (Baer, 2009; Dekker, 2011; Waring, 2009).

The decisions that nurses make cannot simply be reduced to conscious choices between competing goals. Nurses' actions arise from their interpretations of cues, based on their experiences and are made meaningful through frequent social interactions. Similarly, sensemaking theory (Weick, 1995; Weick, Sutcliffe, & Obstfeld, 2005) examines how people create meaning through context-specific social interactions, incorporating perceptions of their local and wider organizational environments. "Frames," as described by Weick (1995, 2001, 2009) in his seminal works on sensemaking, are action-oriented knowledge structures that guide behavior and are both a product of and an input into the continuous process of sensemaking. Using their experience, individuals (and groups) develop knowledge structures, similar to those described in the literature as "cognitive filters" (Oliver & Roos, 2005), schemata (Fiske & Taylor, 1991), or mental models (Klein, Moon & Hoffman, 2006). It is through these structures that individuals order and give meaning to their environments. As such, frames continue to shape and refine meaning making through ongoing action. Therefore, from both theoretical and practical perspectives, sensemaking offers a holistic view of decision making and behavior in the patient care context because it integrates nurses' tacit and

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explicit knowledge of their environment, connecting this knowledge to decisions and actions. It is from this theoretical perspective that we explore how nurses reconcile organizational goals such as patient safety and care, with their own health and safety.

Nurses' health and safety is important in its own right because the standard of patient care that can be delivered is compromised if workers' well-being is constantly at risk (Dekker, 2011; The Joint Commission, 2012; Yassi & Hancock, 2005). The impact of the rich and changing social context of the decision environment is increasingly being considered in workplace interactions (Abolafia, 2010; Albolino, Cook, & O'Connor, 2007; Bartenuk, Rousseau, Rudolph, & DePalma, 2006; Colville, Brown, & Pye, 2012; Jeong & Brower, 2008) but has been largely neglected in examining risk and decision making by workers in relation to health and safety at work.

There are a few exceptions. Several studies examined variations of frames developed by workers in their responses to occupational hazards and risks. French paper manufacturing workers, Italian construction workers, and Scandinavian commercial fishermen are examples of persons in occupations that have been found to produce frame-like structures as products of the collective social interactions and cognitive processes enacted as they participated in work. These studies illustrate how workers are socialized about work-related safety and danger by engaging in a local culture of practice through active and reciprocal processes (Allard-Poesi, 2001; Gherardi & Nicolini, 2002; Thorvaldsen, 2013). The social context of risk-based decision making has also been studied in emergency services workers, who experience high levels of work-related risk. Scott and Trethewey (2008) studied risk perception and decision making by firefighters, revealing how they socially attenuate or amplify risk through generating "interpretive repertoires" to explain risk. The involvement of police officers in traffic accidents also highlighted how they construct a "topography of risk" through their discourse to inform their risk-based decisions (Dorn & Brown, 2003).

The common theme in each of these studies is that workers conceive of hazards and the processes for controlling them as "products of communication" at the group and organizational levels rather than as outcomes of individual psychological processes. Inherent in the social processes identified in these studies were participants' use of an organizing framework in which they ordered information to derive understanding of their work environments. Contemporary thinking about worker health and safety focuses on simplistic views of compliance with procedures, rather than viewing the construction of safety as an ongoing enterprise. In this article, we aim to recast conventional ideas of work health and safety (WHS) by showing how nurses construct their safety at work by generating frames through sensemaking. These frames structure nurses' interpretations of their "world of work" and how safety is practised within it. This understanding informs nurses' decisions and actions, which in turn shape ongoing sensemaking. The degree to which perceptions are shared is an integral part of the social environment at work and is the context in which health and safety decision making exists.

Theoretical Background

Interpreting the environment is a key factor to making decisions (Croskerry, 2014; Maslen, 2014; Walter, Li, Dunsmuir, & Westbrook, 2014). Weick (1995), a pioneer of sensemaking research described *sensemaking* as an ongoing process of social interaction, interpretation, and action in the face of complicated and ambiguous activities. It is one way in which individuals are theorized to make sense of their organizational environment (Weick, 1995; Weick et al., 2005), although its contribution to decision making has been much less studied. In essence, sensemaking allows participants to "stay in contact with context" (Weick, 2009, p. 33), producing a narrative that describes their interpretation of what is happening. Through the reciprocal exchange of ideas, individuals derive meaning from their ongoing, localized interactions to develop plausible explanations of their environment.

Frames are a product of sensemaking (see Weick, 1995), representing a shared (though not identical) interpretation of how individuals experience a particular environment. They arise from the interplay between artifacts (information, documentation, and equipment) and action in a recursive process. Through mutually constructing frames, members of a group form a collective understanding of the work context to guide behavior (Anderson et al., 2005), sharing their history of interaction (Hazlehurst & McMullen, 2007). Once formed, frames function as action-oriented knowledge structures that guide behavior by directing attention to environmental cues and shaping their interpretation. Participants attach meaning to the connections between events (Czarniawska, 2006), and frames enable participants to connect cues within frames to the context in which events exist. The construction of meaning is therefore relational, arising from connecting one cue with another or a previous experience (Weick, 1995). In this article, the concept of frames is derived from the work of Weick (1995) as we apply the theory of sensemaking to nursing work. We make a theoretical contribution by revealing how frames, as collective knowledge structures, are created and used as the foundation of safety-related decision making, as illustrated through nurses' construction of frames in the hospital setting.

Application to Nurses

Nurses' decision making has been the subject of much research. Most studies have focused on the clinical decisions that nurses make to facilitate the care of their patients (see Bucknall, 2010; Randell, Mitchell, Thompson, McCaughan, & Dowding, 2009; Tanner, 2006). Based on their lived experience of interacting with patients and colleagues over time, and

through recognizing patterns of cues in clinical signs and symptoms, nurses interpret and implement decisions to guide their patient care. What is salient in relation to nurses' decision making regarding safety is the apparent paradox where, during routine work, they often place the patients' needs above their own (Zohar & Erev, 2007). This observation suggests that the perceived relative priorities in the organization have a profound impact on the decision making and behavior of workers, supervisors, and managers.

Drach-Zahavy and Somech (2010, 2011) highlighted the conflicts experienced by nurses in managing their own health and safety in the service of patient care. Using interviews and observational data from 90 nurses within 15 hospitals, they identified that nurses used "implicit theories" to decide when to comply with safety rules. The nurses they describe spoke about the following: continuing to care for the patient, even at the price of protecting themselves; the importance of not disturbing other nurses' work; the common mind-set that "it cannot happen to me"; the need to be aware of recently occurring accidents; and protecting themselves when significant others were present. Drach-Zahavy and Somech's article was especially significant in revealing nurses' own thinking regarding their non-compliance with procedures. Yet, non-compliance is only one aspect of WHS. Equally important is how people collaborate and cooperate in the face of changing conditions to respond to hazards and risks.

Our article examines how nurses create health and safety awareness in their daily work, through the use of policies, procedures, and interactions. One critical way in which nurses acquire proficiency is through making sense of the cues from their patient, as highlighted in the seminal work of Benner, Tanner, and Chesla (1992). Based on sensemaking theory, we expect that nurses become proficient in health and safety practice by making sense of the cues arising from their work and organization. In other words, the extent to which nurses share their understanding of health and safety—as interactions between patients and nurses within a work environment—should determine their capacity to act together and play a central role in how they make WHS decisions. This leads us to our research question:

> **Research Question 1:** How do nurses integrate their health and safety into their interactions with others as part of the sociocultural environment in which patient care is performed?

Method

In this ethnographic study, we used multiple methods, including semistructured interviews to examine perceptions, observations of behavior, and analysis of hospital-specific documentation to identify explicit rules and espoused practices pertaining to health and safety.

Procedure

This research took place in five acute care hospitals (designated as H1–H5) located in one Australian state from 2011 to 2012. Two hospitals (H1 and H2) were small private facilities of 50 beds, H3 and H5 were large public hospitals of 650 and 600 beds, respectively, and H4 was a medium-sized public hospital of 110 beds. Research sites consisted of specific wards or units in each hospital. In H1, H2, and H3, we examined surgical services, in H4 emergency services, and in H5 intensive care. Ethics approval was obtained from the Human Research and Ethics Committees of the University of South Australia as well as H3, H4, and H5. In addition, contractor liability and confidentiality agreements were established with H1 and H2. Patients were not included in the research.

Participants volunteered and gave signed consent prior to interviews and audio recording, and were free to withdraw at any time. Participants were aware of the presence of the researcher on the ward and the purpose of the research. The first author attended the handover at the commencement of each shift to brief the nurses on the research activities and respond to their questions. Each nurse was requested to provide verbal consent prior to each occasion of work observation. Where consent was not provided, the researcher withdrew.

Data were collected in three stages across a 4-week period at each site. In the first stage, we reviewed safety-related documentation to provide familiarization and an overview of the philosophy, scope, and content of procedures in use. Documentation for review was selected guided by the significant tasks involved in nurses' work, the processes for managing these tasks, and the hazards presenting the greatest risks to nurses, as identified through injury profiles recorded by each hospital. Information sourced from salient documentation was used to evaluate observed and reported compliance with espoused procedures and is reported elsewhere (O'Keeffe, Tuckey, & Naweed, 2015). During the second stage, we observed nurses undertaking their routine work, whereas Stage 3 consisted of semistructured interviews with nurses, including WHS[1] coordinators and elected health and safety representatives.[2]

Our review of safety documentation centered on the WHS management system, although it became evident that clinical policies and procedures often contained safety information relevant to the nurses (e.g., infection control), so these documents were also reviewed. We conducted continuous observations during 108 work shifts (between 7 and 12 hours duration) totaling approximately 1,000 hours across sites. We focused on activities that minimized intrusion for patients, for example, bed movements, assisting ambulation, and the use of handling equipment. At H1 and H2, only weekday day shifts were observed at the request of management. At H3, H4, and H5, data collection occurred across day, evening, and night shifts during weekdays and weekends.

In the third stage, 72 nurses (12 in H1 and 15 each in H2, H3, H4, and H5) were purposively selected to participate in interviews, taking account of role and level of experience. Interviews were semistructured using open-ended questions, and guided by the use of an interview schedule to ensure that all participants were asked consistent questions. The nurses (63 registered and 9 enrolled, 62 women and 10 men) had practised for an average of 17.2 ± 11.8 years.

Most interviews were undertaken during work time in quiet areas adjacent to the ward; however, some nurses were more comfortable participating during their formal work breaks. Nurses were interviewed adjacent to the ward largely for practical reasons. Nurses were willing to participate during quieter periods in their shifts but were reluctant to leave the ward, wanting to be available if needed. Second, tea rooms and training rooms were often not occupied during shift times and provided the necessary quietness, privacy, and accessibility if nurses needed to return to their patients quickly. The third reason nurses were interviewed during work time was that the researchers believed that they were more likely to be "in role" and possibly more readily able to recall experiences that influenced their decision making. We invited participating nurses to tell stories about occasions where they had to make decisions because they believed their health and safety was at risk and they had to act to keep themselves safe.

Analysis

Interviews were audio recorded, transcribed, and analyzed using NVivo 9 software (QRS International) to organize text into themes. All data were collected, coded, and analyzed by the first author. Two transcripts per site (13% of the interview sample) were independently coded by the second author, and reviewed and discussed to determine consensus. Data saturation was achieved when no new themes were identifiable in the interview texts and observations, according to established guidelines (Guest, Bunce, & Johnson, 2006). Interview data were supplemented with text recorded from concurrent field observations, representing data triangulation.

Coding and analysis were inductive processes in which text was coded from transcripts without determining categories in advance. Consistent with grounded theory approaches, data collection, analysis, and interpretation occurred simultaneously until data saturation was achieved. Data were coded in three stages. First, open coding involved reading the data line by line and establishing substantive codes with similar meanings as indicated by repeated concepts and phrases (see Auerbach & Silverstein, 2003). Substantive codes were then grouped to form categories. Axial coding was then used to establish links between the categories and subcategories. Finally, selective coding enabled the core themes to be identified (Green et al., 2007), which formed the basis of distinct frames that linked interpretation with action (see Braun & Clarke, 2006). These coding stages reflect the first three stages of thematic analysis: immersion, coding, and categorization (Green et al., 2007).

The resulting frames followed the convention of Weick (1995), being expressed as active present tense statements that described nurses' orientation toward health and safety practices. Discrepancies between formal standardized practices and practices in action were reconciled by examining in detail the circumstances and nature of the deviations from formalized practice to classify actions as compliant or noncompliant and to determine the influences on decision making. This work is reported elsewhere (O'Keeffe et al., 2015).

To enable reflexivity, the first author maintained a research journal while undertaking the research to assist in reviewing and interpreting the contribution of her role and experiences in influencing the findings of the research. Being an experienced health care professional with an ambulance background enabled the first author to establish credibility and rapport with nurses through understanding their language and conventions, while providing sufficient detachment to allow questioning and exploration of nurses' practices.

Results

In explaining nurses' accounts of decision making about their health and safety, sensemaking provided a process through which we analyzed their narratives of work. We argue that frames describe the coalescence of individuals' understandings of how the workplace operates, so it is likely that frames, being structures derived from shared understanding, provide a mechanism for reducing complexity and facilitating work. We identified four frames arising from our analysis of nurses' sensemaking: (a) communicating builds our knowledge, (b) experiencing situations guides our decisions, (c) adapting procedures streamlines our work, and (d) team working promotes safe working. These frames present as layers of sensemaking, each layer preceding, interacting with, and informing the next, as nurses decide how to approach the tasks at hand. Although each frame was generated through discussions on the WHS of nurses, the frames also benefitted patient care. In communicating about patient needs and drawing on their experiences of providing care, nurses were able to transfer timely and relevant information that facilitated the delivery of quality care for their patients. In adapting procedures to streamline activities and enacting team work to overcome obstacles, nurses mostly gave priority to patient needs while trying to minimize risks for themselves.

Communicating Builds Our Knowledge

Communication underpinned the interactions between management, nurses, patients, and other health care providers in sharing and updating knowledge. Sharing knowledge included the various forms of knowledge identified by Alexander, Shallart, and Hare (1991). Typically, nurses shared factual information, along with knowledge of processes and routines

and how and when to apply them. Central to sensemaking, sharing also included conceptual knowledge based on familiarity with the physical, social, or mental world, and knowledge about language and its use. In practice, nurses shared all types of knowledge through conversation and documentation. There were formal mechanisms such as monthly ward meetings, handovers, communication books, and training. Informal mechanisms such as conversations were significant in conveying timely information. Together, these opportunities allowed nurses to share and make sense of their daily actions through exchange and clarification, keeping them up to date with information, as described by two nurses:

> Our main thing is the communication book. We have emails . . . We also have in-services [training]. Word of mouth is also a very important way for us to share information . . .

> Well we've got the communication folder, that's hard copy—it's also available on the bedside computers. If you're busy you don't get time to sit down at the bedside computer, there's always word of mouth. Yesterday I went in to check Bay 22, the nurse had the new pump that we're trialling . . . so I said, tell me about the new pump, and he went through it with me, so I learn from the people at the bedside.

Nurses often saw formal communication channels as slow and cumbersome and enacted their information through verbal exchanges. Ad hoc, opportunistic verbal communication was crucial to nurses in garnering information and resources to facilitate and maintain their flow of work through social interactions. By way of example, updating colleagues about the status of a patient allowed the team to plan assistance, sharing the available physical, cognitive, and emotional resources. Nurses agreed that sharing resources reduces risk for patient and nurse. The primacy of conversation in updating team members on patients' status, workload, and potential risks, while also reinforcing in memory waiting tasks, was echoed in the comments of one nurse:

> The ED is mainly a verbal environment. If you don't talk, if you're not someone who likes to work in a team, and you get irritable and you don't want to talk, you're screwed. Your shift will get harder and harder and harder. You can never afford to shut down verbal communication, not even slightly; everything just happens so fast.

Other nurses emphasized how information was shared verbally on the ward:

> Well if we have a question we ask. And we problem solve it. If someone knows about a memo that seems to be interesting or different or something out of order or whatever . . . they'll bring it to other people's attention. There's a whole lot of when we're talking, we're talking.

> I think there is nothing routine about this job. You have to rely on bits of paper and notices stuck around computers and word of mouth from other people you're working with that the information is being relayed on.

Therefore nurses activated documented information (by spreading information via word of mouth) as part of a sociotechnical system. Through their informal but crucial verbal encounters, nurses were in a constant process of updating their knowledge about patients, events, and policies, integrating new information into their frames. Communication allowed nurses to test their interpretations built through their own experience against those of their colleagues.

Nurses valued the frequent, informal, verbal communication that emerged through constant interaction for its role in keeping them up to date on subtle changes that might affect safety. Nurses' comments also emphasized that there was much communication occurring beyond formalized systems requiring them to adjust their responses to the fluid nature of their work through the frame *communicating builds our knowledge*. This frame demonstrated that although much value is placed on the formal documented system, in practice it was the face-to-face verbal interaction that was essential for enacting documentation and filling the gaps it did not cover. It was the conversation and interaction that nurses valued, which enabled them to organize and simplify their work.

Experiencing Situations Guides Our Decisions

Communication provides the foundation on which subsequent frames are layered, showing that constant verbal communication was a vehicle for sharing the nuances of nurses' daily work. It was also a mechanism through which the benefits of experience were shared. Experience might be seen as gaining proficiency through participating in activities or events, involving interpreting and acting within a sphere of practice. Experience is acquired through continual exposure to routine situations, interspersed with novel variations. Sensemaking theory suggests that applying experience to particular contexts is the basis for formulating plausible explanations of events (Weick, 2009).

Nurses valued their experience, particularly related to problem solving, as central to their identity as capable professionals. Nurses also saw the ability to problem solve as closely allied to decision making. Problem solving applies to identifying and resolving obstacles that arise while performing daily work routines. Typically, nurses solve problems to the extent that enables them to proceed with "getting things done" to benefit the patient. Nurses used their experience in problem solving for addressing organizational impediments such as lack of equipment. Such situations frequently have impacts on patient care, which flow through to nurses' own safety. For example the lack of lifting hoists in the ward encouraged nurses to work out suitable ways to manually lift patients in contravention of local policy, as described by a nurse while dealing with a fatigued patient sitting out of bed:

> It wasn't a safe situation, we don't have enough access to lifters so we don't use them . . . if someone is in a chair, we can't get them back to bed. We don't have many other options other than to get enough people to lift them in a "no lift" policy hospital.

Although this nurse technically fails to comply with local procedures requiring the use of a hoist, she utilizes her experience to overcome the lack of equipment for the benefit of the patient.

Nurses' experience is also fundamental to providing safe patient care through their capacity for "knowing" each patient, being able to assess and monitor changes, and intervene. As one nurse observed,

> In nursing you are not working with solid structures, they're people. What works for one person doesn't work for another. It's very individual and involves critical thinking. It's ongoing every day and you have to do it for every person who comes through the door. It's what is described as the nursing process.

Through observing and intervening with multitudes of patients across time, nurses construct a complex array of cues to alert them to changes that in turn structure their actions and are fundamental to their ability to individualize the delivery of nursing care. A major threat to nurse safety in many hospitals is patient aggression. Nurses in our research talked about using cues, learned through experience, to identify critical signals:

> You can tell when someone is starting to arc up or become violent and agitated . . . like pacing around the room. Some of them will raise their voices and come into your personal space . . . but the pacing is usually the first thing.

> Because it's busy in the emergency department, sometimes you can miss the cues that the patient's putting out and by the time you pick them up, it's too late. It's having the physical time to keep an eye on people to be able to pick up when they start pacing and get agitated.

Nurses also applied this process to patient safety:

> I try to look at everyone all the time [in the emergency department]. I don't ever walk past people and not look at them. I use a lot of visual clues to see if my triaging should change. So that's patient safety, so if I, if someone looks like they are hypotensive and might collapse for instance, pale, blah, blah, then my time goes there.

Where nurses make clinical decisions involving urgent intervention, personal safety might be traded off as part of an experience-based assessment of relative risk. Nurses may perceive that the patient is at greater immediate risk and save the time required to follow safety procedures in favor of providing urgent care. In trading off personal safety to act quickly, nurses may enhance their feelings of professionalism and self-efficacy because they are "trained to save lives." On occasions, nurses were observed not wearing personal protective equipment, ostensibly to save the time taken to apply it. Nurses also manually lifted patients using their practical experience to assess relative risk because it is quicker and deemed "safe enough" to do it alone than wait for assistance. Nurses are trained not to manually lift alone, though in doing so, they also decided to minimize demands on busy colleagues by not requesting help. Instead, nurses use experience to problem solve, enabling them to proceed with their work and minimize disruption to work flow across the ward.

Through the act of performing clinical tasks, nurses applied and refined their experiences, acquiring skill and judgment. Nurses applied this expertise to making decisions about working safely, using their experience to gauge risks and assign priorities, considering the impact on patient and nurse safety. Hence, the frame *experiencing situations guides our decisions* grounds nurses' decision making in their deep practical knowledge gleaned through past successes and failures.

Adapting Procedures Streamlines Our Work

The preceding frame illustrates how nurses used their experience to determine satisfactory ways of dealing with conflicts between standardization and flexibility in practice. On occasions, this led to adaptive non-compliance with established procedures. Logically, compliance with rules should secure safety, because rules have been developed as the "best way." Rules also shift the onus from the individual to determine appropriate action. Nurses recognized both the value and limitations of rule-based procedures, with one nurse observing,

> . . . there are policies for most things. That narrows down the options for making decisions. Though there are not policies and procedures for all events, so you have to make the best decision you can based on what is happening, the resources you have and your experience.

The reality of the work environment was significant in interpreting and applying procedures in patient care situations and was reflected by one nurse in suggesting that

> . . . procedures written down on paper always reflect the perfect scenario. Nursing on paper is different to nursing in practice. I mean so many factors come into it—lack of resources, the timeframe . . .

Ensuring compliance is a perennial problem in WHS. As noted by the nurses in this research, procedures frequently do not reflect the complexities of the real world. Nurses often perceive time pressures and production goals to override the requirement to comply with procedures. Although the nurses largely complied with policies and procedures, they invoked their professionalism and experience in deciding how to manage specific events. Specific events associated with non-compliance with procedures were characterized by the urgency of

the patient's condition, time pressures to achieve multiple demands, and lack of access to resources, such as equipment or staff. Often these constraints occurred in combination. The nature of health care is such that these combinations of events are common, creating conflicting goals and resulting in safety versus production (i.e., patient care and safety) tensions. Nurses expressed these tensions, lamenting,

> When it comes down to patient safety . . . our first action isn't to protect ourselves and put gloves on or . . . get a lifter from another ward to lift a patient, you just do it. For the main part staff safety would come second.

> I've had patients clinically deteriorate when they're in a chair. Sometimes we actually have to physically lift them into bed and I understand that it's not safe but I don't have any other option at the time. So I've actually done it, but I've realized that I'm not doing the right thing.

These nurses' non-compliance allowed them to achieve the dual goals of saving time and attending to the patient's care, allowing them to adapt to the dynamic nature of the work while enhancing their feelings of competence and efficiency.

Nurses considered it appropriate and often necessary to adapt procedures to the discrete circumstances of the work, by taking account of social, organizational, and individual factors. Procedural non-compliance allowed nurses to achieve what they perceived as the best outcomes for the patient and to maximize their own short-term benefits, while giving active consideration to their personal risk.

Team Working Promotes Safe Working

Through the frame *team working*, nurses aggregated and applied the knowledge derived from earlier frames to optimize safety. In each of the hospitals, nurses considered team work as integral to promoting staff and patient safety. The nurses working in each area viewed themselves as a team: an inter-dependent group of people working toward common goals with a shared purpose (Finn, Currie, & Martin, 2010). Nurses' team work emerged through conducting work in pairs or in small groups, such as jointly checking medications, using equipment, assisting with patient handling tasks and clinical interventions, and problem-solving impediments to their tasks. In most of the hospitals, nurses were individually responsible for four to five patients. However, in H2, they practised team nursing, where two nurses were responsible for eight to nine patients. Having a designated partner improved nurses' access to physical, emotional, and cognitive resources, easing their workloads, their sense of time pressure, and increasing their feelings of support, as expressed by one nurse:

> The nurses here don't just let people sink or swim . . . they will help you if you say you're struggling and need help. I find the staff here always ask each other. It's very good team work and that makes a huge difference [to the workload].

Hence, nurses saw team work as critical to shouldering the peaks in workload and intensity and efficiently negotiating the often competing goals in their work.

Whereas nurses recognized team work as vital for safe working, it did not mean that assistance was generously given or satisfactory team work always occurred. One nurse reported,

> [Team work] varies—the team needs to gel and things work well. It depends who is working on the shift—some people don't pull their weight and it is a huge drag on the rest of the team because everyone else's workload goes up—that can have a big impact on health and safety and the standard of care you're able to provide.

Despite preferring to concentrate on her own work, another nurse expressed a sense of obligation to provide help, commenting,

> I am not a team player although I will help out when I am asked. I expect people to ask me if they need help. I don't see why I should be on the lookout for whether people need help. They need to take responsibility for putting their hands up if they need help.

Respect for individuals is important for effective team work, as is the need to create a safe environment in which to ask for help. Where there was competition between peers for resources and conflicts as to who had the power to decide how to implement procedures, effective team work enabled colleagues to resolve differences. One nurse illustrated this in regard to patient handling,

> I asked for an extra person who came in then said "No, we don't need an extra person" and I went "Yeah but I do, so we're getting an extra person" and they went "That's fine." They didn't agree with my decision but they respected it. It's not a negative impact on anybody, waiting another couple of minutes to get an extra person. It would've been borderline with one person, maybe I could've done it but I probably would have injured myself.

When team work broke down, nurses reported that their workload felt much heavier and that "sometimes you work with people and you feel like you are doing their job as well as yours." Some nurses reported that team work depended on the personalities of the members and the ability of the team to bond. Some nurses believed that where there was an unwillingness to help each other, it predisposed colleagues to stress and bullying. Others felt that newer workers, including those of different nationalities, might negatively affect team work because they are not familiar with the intricacies of the work flow and the customs of the workplace. Team work provides resources for enactment, which Weick (1995) described as the way people collectively contribute to the

creation of the environment they face. Team work enables social interaction and people coordinate their action based on a degree of shared meaning. Therefore, nurses positioned themselves through the frame *team working promotes safe working* to garner resources that made their work safer and easier.

The four frames guiding nurses' work intersect. Communicating to maintain current and timely knowledge of the status of activities on the ward is essential for nurses to be able to selectively draw on their experiences to make decisions. Experience is necessary for recognizing conflicts between procedures and practices, and for guiding informed decisions about how to adapt work to novel circumstances. Adapting work procedures is sometimes unavoidable to enable work to proceed. Finally, team working is a solution for drawing on additional resources that make the work safer and more efficient and also enhances nurses' identities as effective problem solvers.

Discussion

The purpose of our study was to reveal how nurses integrate requirements for their health and safety into their interactions with others as part of the sociocultural environment in which patient care is performed. Rather than emphasizing nurses' non-compliance with formal safety requirements, our focus on how nurses create safety revealed that nurses' decision making was part of a contextualized social practice integrating patient and nurse safety. Consistent with sensemaking theory, we observed the role of nurses' experience and situated action in extracting, interpreting, and responding to environmental cues, resulting in the formation of frames. The process began with communicating, as the vehicle for sharing knowledge and information. Over time, this knowledge and context-specific behavior accumulated to produce webs of experience. By integrating the social context into decision-making practices, we saw how nurses developed experience in assimilating the broad range of cues to form fuller understandings of their environment. Using this experience, in most instances, nurses were able to adapt work procedures to suit their circumstances, particularly under resource- and time-strapped working conditions. Finally, to alleviate these conditions and maximize support, nurses recognized the value of team working in working safely, effectively, and efficiently to juggle work goals.

Nurses' use of frames recognizes that in complex and dynamic environments, compliance with procedures is insufficient or impractical for achieving conflicting work goals. In fact there is a paradox where instead of guaranteeing safe outcomes and productive, efficient work, prescriptive rules often favor one outcome at the expense of the other. Rules may in fact be a straitjacket for experienced workers because dynamic, high-risk work is not amenable to rigid controls. Nurses' frames reflect a model that buffers risk, truly integrating it as central to the work, rather than a side-line.

The nature of nurses' frames provides a foundation for better understanding of existing knowledge of nursing practice. There is a dearth of literature that examines nurses' construction *of their own* health and safety through their work. Two recent studies that examined nurses' frames related to safe practice both focused on patient safety (Drach-Zahavy, Goldblatt, & Maizel, 2015; Hewitt, Chreim, & Forster, 2014). Hewitt and colleagues (2014) described the frames that nurses and physicians apply to incident reporting. These inter-related frames were "fear of blame," "telling tales," "learning," and "doing no harm." Nurses placed higher value on sharing information than physicians, motivated by their perceptions that sharing would enhance group, and thus, organizational learning. As in our study, nurses' sense of professional identity led them to be patient-centric, operating within the frame "to do no harm." In common with the frames in the current study was the idea of blame, where nurses would be deemed incompetent or unprofessional if they did not prioritize the needs of the patient above their own. Also implicit in nurses' frames related to incident reporting was the notion of a severity threshold, which determined the nature of incidents that were actually reported. The severity threshold concept has similarities to how nurses ultimately use their frames about health and safety at work to make decisions to protect themselves (O'Keeffe et al., 2015).

The frames that nurses use to manage the exchange of patient information during handovers have also been studied with the focus again on patient rather than worker safety (Drach-Zahavy et al., 2015). Guiding practice in handovers, nurses' frames were "adapting declared goals to ward routine," "turbulent circumstances," and "optimizing patient care." These frames attempted to balance standardization with resilience, and had similarities to frames constructed by nurses in guiding their decisions on their own health and safety. In both circumstances, adapting procedures and practices to meet individual and organizational goals was a strategy adopted by nurses, motivated by their need to continue with their work for the benefit of their patients. The need for adaptation was more pressing in the face of turbulent work environments where goals are likely to be in conflict. The two studies on frames related to patient safety draw closer attention to the relationship between the factors that create patient and worker safety, giving weight to the need for further research on this interaction.

Few studies have specifically examined nurses' frames relating to their own health and safety at work. The frames identified in our study shared similarities with the findings of the research with Israeli nurses by Drach-Zahavy and Somech (2010). The frame "adapting procedures streamlines our work" was consistent with the implicit rule "continue providing care for the patient." Nurses in our Australian research adapted procedures, by taking shortcuts or problem solving, thereby enabling them to continue caring for the patient in the face of obstacles. However, our frame "team working promotes safe working" conflicted with the implicit

rule "do not disturb other nurses' work." The nurses in our study were amenable to seeking and providing help to manage their workloads, facilitating their ability to provide patient care. Accordingly, they were less likely to perceive the need to ask for practical help as threatening to their professional identity. On the contrary, contributing to the good of the team was valued and nurses expected to reciprocate when colleagues required assistance. The three remaining implicit rules identified in the Israeli research (it cannot happen to me; be aware of recently occurring accidents and protect yourself in the presence of significant others) did not emerge strongly in our research, which illustrates the importance of focusing on the construction of safety as well as discrete events of non-compliance—two different stories may emerge.

The strengths of our research were the immersion in the nurses' world of work, made possible through continuous observation and the sampling of nurses across 108 shifts, in various specialties and hospitals. This immersion enabled us to capture the nuances of nurses' perceptions of health and safety and contrast these with practice. Conversely, our research was limited by the restricted access to shifts at the two private hospitals, reducing the representativeness of observations in the private sector. Differing staffing arrangements (such as fewer personnel, particularly senior management) occur outside "office" hours, which might have influenced the quality of the supervision and how procedures were accessed or applied. In addition, nursing tasks differ during the night shift while patients are sleeping. Nurses were asked to reflect on their experiences of health and safety decision making. Recall bias is known to affect the accuracy with which past events are remembered and the importance placed on salient aspects. Nevertheless, sensemaking is grounded in experience and nurses reported the events that were significant to them in the examples they offered.

Implications

Nurses' frames oriented them toward practice that sought to balance safety for patient and nurse. Achieving that balance was a fluid process (Weick et al., 2005). Each of the frames intersected to affect the efficiency, effectiveness, and safety of nursing practice. Through these frames, nurses saw patient and nurse safety as dynamic states that they could influence through their decisions and actions. The theoretical implication of these findings relates to the role that social interactions play in the decision-making environment. Social interactions not only act as cues in the decision context but also exert their influence on cognitive functions such as attention, which determine the relative priorities of cues. What nurses attended to was influenced by their sense of identity, for example, their professional and personal values and their experience. All these factors are significantly shaped by social interactions.

The actions of managers and supervisors largely influence how policies and procedures are implemented which, in turn, shape workers' decisions and behaviors. Our research showed that nurses made sense of their work by sharing perceptions, testing them, and refining them in the face of management behavior, which ultimately informed their health and safety decisions. Where non-compliance was ignored or condoned by management, such as occurred with the promotion of patient safety or productivity goals above worker safety, violations became more prevalent. This observation suggests that in some circumstances, particularly where there is conflict between the practicalities of applying prescribed procedures to reality, non-compliance can be rewarded. This is particularly so where the outcomes enhance patient safety. Promoting patient safety is a primary goal of the health care system, which often is valued more highly than nurse safety because the objective of the health system is to do no harm to its clients.

Our findings therefore add weight to the notion that perceptions of health and safety are formed through workers continually sharing their interpretations of the congruence of behaviors and discourse in the workplace (cf. Zohar, 2008). Nurses' frames provided the means for integrating their knowledge and experience-based wisdom to shape their decision making and coordinate their actions. Frames were therefore integral to optimizing nurse and patient safety and in doing so, fostered a strong nursing culture and identity.

The second area for which this research has implications is health care policy. Organizational goals influence the relative importance that workers place on workplace practices. The complexity of the health care system is exemplified by the raft of organizational goals within individual hospitals. Goals address the needs of the many stakeholders, and so include a broad context of budgetary, equity, quality, and patient safety and worker-related goals. Our research has shown that the way in which nurses' health and safety is positioned relative to patient safety and productivity acts to undermine nurses' welfare.

Conflicting goals encourage violations when an individual wishes to be a "good employee," as exemplified by following safety procedures and to comply with procedures that are at odds with a different goal, such as "to be professional," as demonstrated by doing the best for the patient. This goal mismatch often results in tensions between compliance and non-compliance. Changes in attitudes toward patient handling provide an example. Since the advent of no lifting policies to minimize manual handling in hospitals, catching a falling patient has been discouraged. Many nurses are conflicted by the idea of allowing a patient to fall and risk being injured, despite the high risk of the nurse sustaining a serious injury.

Nurses in this research spoke about other undesirable consequences of patient falls such as the copious paperwork required to report a patient incident and the anger of significant others. Therefore, in the face of goal competition, nurses

tended to optimize the outcomes of their decisions through working to achieve the perceived greater good, which was often in favor of the patient, but might contain elements that benefit the nurse. Nurses' perceived benefits included saving time and enhancing their sense of professionalism and self-efficacy, which often overrode their health and safety.

The third implication from this research involves nurses' safety practice and the nature of the health and safety education programs designed to deliver it. Our findings support the assertion that the mechanisms through which worker safety is achieved are similar to those through which patient safety is achieved (cf. The Joint Commission, 2012; Kohn et al., 2000). The frames produced by nurses thinking about their health and safety were oriented toward doing the job safely, which included safety for the patients and themselves. However, the findings emphasized the primacy placed on patient safety that marginalized nurses' health and safety. Management and health and safety specialist advisors treat health and safety for nurses as distinct from core business activities such as patient care. If outcomes for nurses and patients are to improve, then there is an urgent need to better integrate these two safety goals and functions (i.e., to integrate process goals with production). Realigning values for safety is a logical place to begin. Nurses' welfare is not merely a moral imperative but necessary to ensure the sustainability of the health care system.

Conclusion and Further Research

Risks to health and safety arise from the work itself, and for nurses, this creates the dual responsibility to care for their patients and themselves. Compliance with rules is advocated as the best way to achieve safety, yet in practice, the requirements of procedures may create conflict with goals for performing the work efficiently. Nurses' frames allow them to reconcile competing priorities to optimize performance, using their skills, experience, and tacit knowledge. Frames are layered interpretations, through which nurses collectively make sense of, and enact their work. Communicating effectively, gaining and applying experience, proficiently adapting performance, and enacting team work are foundational skills that nurses must develop to successfully optimize safety and care.

The findings of our research add weight to the importance of communication and relational skills (referred to as non-technical skills in the human factors literature) in enhancing the application of occupation-specific technical skills and promoting safety in complex environments. The findings highlight the need for greater emphasis on these skills in nurses' ongoing training and work design. Such skills include strategies to promote communication, team work, and leadership. One example is the use of "huddles" where small, ad hoc teams come together for episodic problem solving. Job design strategies are also warranted; in particular, distributive leadership models could be adopted that encourage individual participation and ownership of safety embracing both patient and nurse.

Further research is needed on the utility of frames in optimizing work performance. First, because frames are richly context specific, studies are necessary to better understand how nurses' frames are used to guide their decisions on risk. Particularly relevant is how nurses reconcile individual and immediate goals with organizational goals. Nursing is largely practised with individual nurses being assigned several patients for whom they are responsible. The reality is that many of the tasks that constitute nursing care require team work enacted through fluid teams to ensure safety for both patient and nurse. Nurses develop frames through their experience on the job. Future research that examines nurses' use of frames at the interface between individual and team behaviors; and the sharing of frames within teams through transformational and distributive leadership, would be valuable in informing better job and task design. A more nuanced understanding of frames in these contexts would support the development of more effective health and safety management.

Second, research in other dynamic work environments should identify the common features of frames developed by workers to understand and guide skillful and safe work performance. Determining whether there are common frames used by workers to make health and safety decisions would promote the development of improved health and safety management systems. Responsive and flexible management systems provide a framework of rules and guidance that supports the use of discretion and expertise. In particular, the existence of common frames would be relevant to informing practices and processes for risk assessment, training, and skill development, and how policies and procedures are designed and developed.

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Notes

1. The terms *work health and safety* and *occupational health and safety* are used synonymously, with *work health and safety* being the updated terminology reflecting changes to legislation taking effect in Australia from 2012.
2. Elected health and safety representatives are workers who are elected by their peers to represent them on health and safety matters. In Australia, elected health and safety representatives have specific rights under the work health and safety (WHS) legislation, such as entitlements to training, to be consulted, and to stop dangerous work.

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