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**Learning from incidents in health care:
Critique from a Safety-II perspective**

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1. INTRODUCTION

Health care organisations need to appreciate how to learn effectively from past experiences and how to feed this learning into improvements in the delivery and the management of care. Patients are continually being put at risk of suffering preventable harm from incidents (Kohn et al., 2000). Over the past 15 years there has been a wealth of studies from many countries that suggest that around one in ten patients admitted to hospital will have an incident, some serious, with as many as half of these thought to be preventable (Baker et al., 2004, de Vries et al., 2008, Sari et al., 2007, Vincent et al., 2001). In addition, around 40% of care is not in line with research evidence or recommended practice (Runciman et al., 2012). In the UK, the scandal surrounding appalling standards of care at Mid Staffordshire NHS Foundation Trust created much media attention. The ensuing Public Inquiry found that between 2005 and 2009 as many as 1,200 patients died needlessly (Francis, 2013). Following these revelations, the UK government commissioned an expert group to provide recommendations for improving patient safety in the National Health Service (NHS). The subsequent Berwick report suggested that the NHS needed to become a system devoted to continuous learning and improvement of patient care (National Advisory Group on the Safety of Patients in England, 2013).

Learning from incidents has been proposed as a key component of successful safety management systems in safety-critical industries, such as commercial aviation and the nuclear industry (Reason, 1997, Pidgeon and O'Leary, 2000). Ideally, effective learning from incidents triggers improvements in practice that enhance safety and productivity (Lukic et al., 2012). The analysis of incidents seeks to reveal contributory factors and underlying causes (Drupsteen and Guldenmund, 2014), which can then be addressed in order to reduce the likelihood of incidents recurring. Learning from past experiences does not have to be limited to the consideration of incidents, but can also include monitoring and analysis of leading indicators, or even weak signals (Drupsteen and Wybo, 2015). However, increasing evidence in the literature indicates that effective learning from past experiences in order to improve safety performance has proven to be difficult (Le Coze, 2013, Lukic et al., 2012, Drupsteen and Hasle, 2014).

Policy makers in health care have been looking at other safety-critical industries for guidance and lessons about learning from incidents (Department of Health, 2000, Kohn et al., 2000). This resulted in the widespread adoption of Root Cause Analysis (RCA) for the investigation of serious untoward incidents (Braithwaite et al., 2006), and the implementation of organisation-wide and national incident reporting systems, such as the National Reporting and Learning System (NRLS) in the UK (Carruthers and Phillip, 2006). Incidents in health care tend to be higher frequency but lower average severity events compared with other industries (Kapoor et al., 2016). As a result, a large number of incidents are reported, and not all of these can be analysed in depth (Anderson and Kodate, 2015). However, despite the large number of potential learning opportunities, questions have been raised about the effectiveness of incident reporting

systems to contribute to improvements in patient safety (Pasquini et al., 2011, Sujan and Furniss, 2015, Braithwaite et al., 2010, Macrae, 2015, Vincent, 2004).

There are now many studies that document barriers to effective incident reporting in health care. Such barriers include, for example, fear of blame and repercussions, poor usability of incident reporting systems, perceptions among doctors that incident reporting is a nursing process, lack of feedback to staff who report incidents, and lack of visible improvements to the local work environment as a result of reported incidents (Benn et al., 2009, Braithwaite et al., 2010, Lawton and Parker, 2002, Macrae, 2015, Sujan, 2012, Sujan et al., 2011a). Among management staff in particular, there continues to be widespread misperception that incident reporting systems might be useful for monitoring incident frequencies, despite evidence that suggests that incident reporting data are poor indicators of actual incident frequencies (Westbrook et al., 2015). It has been suggested that the focus of learning from incidents in health care has been too much on collecting and categorising data (Macrae, 2015, Anderson and Kodate, 2015), whereas successful learning from experience should inherently be a social and participative process (Macrae, 2015, Lukic et al., 2012).

How can health care organisations enhance their ability to learn from past experience in order to improve their safety performance given the obstacles and practical difficulties with learning from incidents outlined above? The paper aims to make suggestions for the policy and practice of learning from incidents in health care by offering a critique based on a Safety-II perspective. In Safety-II thinking safety is defined as an ability - to make dynamic trade-offs and to adjust performance in order to meet changing demands and to deal with disturbances and surprises (Fairbanks et al., 2014, Hollnagel, 2014b, Hollnagel, 2014a, Sujan et al., 2015c, Sujan et al., 2015a). The paper argues that health care organisations might improve their ability to learn from past experience by studying not only what goes wrong (i.e. represented by incidents), but also by considering what goes right, i.e. by learning from everyday clinical work (Wears et al., 2015, Braithwaite et al., 2015b). Learning from everyday clinical work might support health care organisations in strengthening their ability to act on learning by deriving actionable learning of relevance to the local context, and by creating greater ownership and engagement among front line staff.

The paper is organised as follows. Section 2 identifies key lessons from the literature on learning from incidents. In Section 3 we provide a critique of learning from incidents in health care based on Safety-II thinking. We identify suggestions for policy and practice in Section 4. Finally, we present conclusions in Section 5.

2. Models of learning from incidents

The literature on how organisations should learn from incidents is growing, and a number of literature reviews have been published on this topic (Drupsteen and Guldenmund, 2014, Le Coze, 2013, Lukic et al., 2010). While the literature on learning from incidents can be considered fragmented (Lindberg et al., 2010), there have been attempts to draw together key aspects into empirical and theoretical models. A key feature of such models, such as those proposed by Lindberg and colleagues (Lindberg et al., 2010), Jacobson and

colleagues (Jacobsson et al., 2012), and Drupsteen and colleagues (Drupsteen and Guldenmund, 2014, Drupsteen and Hasle, 2014) is the consideration of learning from incidents as a process. Typically, a learning process includes not only the investigation of incident data, but also the steps that occur before (data acquisition) and after (such as deciding on interventions, implementation, and evaluation).

Jacobsson and colleagues (Jacobsson et al., 2012) emphasise the need for a cyclical approach to the learning process, whereby the initial cycle focuses on individual incidents, and subsequent learning cycles aim to yield more representative understanding and explanation across individual incidents, in order to finally lead to embedding of the lessons learnt into long term organisational memory. The model forms the basis for a method to assess the effectiveness of the learning process (i.e. of the individual steps of the process), rather than its particular products and outputs. The assessment method was developed and tested within the process industry (Jacobsson et al., 2012, Akselsson et al., 2012). Their findings suggest that there were deficiencies across all steps of the learning cycle, and that double-loop learning (Argyris and Schön, 1996) was less common.

An alternative process proposed by Drupsteen and colleagues (Drupsteen and Guldenmund, 2014, Drupsteen and Hasle, 2014) attempts to integrate the Deming cycle of business improvement (Deming, 1982) with the organisational learning theory developed by Argyris and Schön (Argyris and Schön, 1996) in order to enable organisations to improve their ability to diagnose difficulties arising from their process of learning from incidents. Their descriptive-explanatory model was developed through a combination of expert opinion, an overview understanding of existing systems used by large petrochemical and petroleum companies, and a literature review on learning from safety incidents and accidents (which notably excluded health care) (Drupsteen et al., 2013). This model of the learning process was then used for guiding data collection and analysis of primary quantitative and qualitative data from a range of sectors (the chemical, construction, energy and waste, food, government, metal, oil and gas, and transportation sectors).

Interrelated factors in an empirical model by Lukic and colleagues (Lukic et al., 2012) specify those that could contribute to effective learning from incidents. This model emphasises the social and organisational enablers of learning rather than the actual steps in the learning process. This highlights the fact that learning is a social process, and that effort and resources should be dedicated not only to improving the quantity and quality of data (i.e. the technical and procedural infrastructure), but also the social infrastructure for effective learning (Macrae, 2015). This raises the importance of factors such as culture, organisational politics, and group behaviours, when seeking to learn from past experience (Sagan, 1993), alongside the consideration of the role and the engagement of the individual in learning from incidents (Lukic et al., 2013). Their empirical model was validated and refined against semi-structured interview data from members of two multinational corporations in the energy sector (a refinery and a gas plant).

Despite these advances described in the literature, empirical work suggests that substantive difficulties still persist across industries, and that organisations are struggling to transform knowledge about vulnerabilities into change in practice (Drupsteen and Hasle, 2014, Anderson and Kodate, 2015, Le Coze, 2013, Sujan, Cite as: Sujan, M.A., et al. Learning from incidents in health care: Critique from a Safety-II perspective. *Safety Sci.* (2016), <http://dx.doi.org/10.1016/j.ssci.2016.08.005>

2015, Pilbeam et al., 2016, Vastveit et al., 2015). The studies suggest that weaknesses exist in all steps of the learning cycle affecting both the breadth and the depth of learning (Lukic et al., 2012). Common practical problems with learning from incidents that have been identified across these studies include: a preference for simple fixes to problems resulting in limited ability of organisations to engage in double-loop learning, lack of acknowledgement and integration of informal learning processes, and limited involvement of staff in the analysis of incidents and in the development of interventions. Leveson argues that learning from incidents remains limited in its usefulness as long as it is based on outdated assumptions that no longer hold for modern systems, and that a new perspective is required (Leveson, 2011). In the next section we take a fresh look at learning from incidents in the health care domain through a Safety-II lens. Such a change of perspective might hold useful insights for overcoming some of the practical problems with turning learning into improvements for patient safety.

3. A Safety-II perspective on learning from experience

3.1 Learning from incidents – embodiment of Safety-I thinking?

Health care organisations (in both the NHS and around the world) usually provide good quality care to their patient population (Braithwaite et al., 2015a). However, when there is an incident involving patient harm, such as the death of an elderly patient who contracted a hospital acquired infection, or a patient being harmed through wrong site surgery, then it is important for organisations to understand what went wrong. It is also important for patients to have reassurance that such events will not repeat themselves in the future. Fortunately, such incidents are rare, and one might argue that they represent extraordinary events. In this sense, learning from incidents might be characterised as learning from the extraordinary (Sujan et al., 2016a).

Learning from incidents in healthcare is based largely on a traditional safety engineering perspective, where safety (Safety-I) is defined by the absence of negative events (Hollnagel, 2014a). Simplifying for argument's sake, one might suggest that safety management based on a Safety-I perspective seeks to reduce the number of incidents as far as possible, typically by eliminating the root causes of incidents or by reducing the risks associated with these to acceptable levels (Hollnagel, 2014b). From a regulatory perspective, this is often embodied and documented in safety cases that aim to demonstrate through a risk-based argument and corresponding evidence that a system is acceptably safe to operate (Sujan et al., 2016b).

Learning from incidents often sets out by looking for what – or who – failed (Lundberg et al., 2009). This is based on the underlying assumption that systems and events can be decomposed meaningfully into individual components or steps, and that incidents and accidents result from the failure of one or more of these components or steps (Hollnagel, 2008, Leveson et al., 2009). The findings from incident investigations then frequently result in risk reduction interventions in the form of barriers, defences and safeguards (Drupsteen and Guldenmund, 2014, Hollnagel, 2014b, Reason, 1997). Such interventions aim to guard against component failures, for example through the use of redundancy or by constraining behaviour through

rules and procedures (Rasmussen, 1997). Common examples in health care include the introduction of standardised communication protocols to prevent failures in clinical handover (Hindmarsh and Lees, 2012), or the introduction of electronic prescribing systems to act as a barrier against human error (Donyai et al., 2008).

This assumption that incidents are necessarily caused by component failures or human errors has been criticised by a number of authors based on observations that socio-technical systems should be regarded as complex adaptive systems characterised by considerable amounts of uncertainty about their technical, organisational and social structures (Hollnagel et al., 2006, Marais et al., 2004, Woods and Branlat, 2011, Braithwaite et al., 2013, Leveson, 2011). Complex systems exhibit different failure behaviours than simple, linear systems – they can fail even though no individual component or step may have failed. Instead, failures can result from dysfunctional interactions, where variability spreads in unexpected ways and is reinforced throughout the system (Hollnagel, 2012, Leveson et al., 2009).

Hollnagel pointed out that this variability was at the heart of both failure and success, and challenged the exclusive focus on the extraordinary, i.e. on incidents, accidents and disasters (Hollnagel, 2014a). Barriers, defences and safeguards represent instances of formal assumptions about how work should be carried out – work-as-imagined (WAI) (Hollnagel, 2015). However, recent literature in the area of Resilient Health Care provides many examples that the way everyday clinical work is actually unfolding – work-as-done (WAD) – is necessarily different from what those who design and manage health care systems assume (Hollnagel et al., 2013, Wears et al., 2015, Braithwaite et al., 2016b). This is due to the complexity of modern health care systems referred to above. Health care systems could be described as intractable (Hollnagel, 2015) - it is simply not possible to specify all operating conditions due to the large variation in demands and the complexity of interactions. As a result, clinicians and health care professionals create success on a daily basis through performance adjustments (Braithwaite et al., 2013, Hollnagel, 2009) and dynamic trade-offs (Sujan et al., 2015a, Sujan et al., 2015b) based on their experience and expertise, and depending on the specific characteristics of the situation. Such necessary performance adjustments contribute to organisational resilience as well as to organisational failures (Fairbanks et al., 2014, Hollnagel, 2012). From a WAI perspective, on the other hand, performance variability is often regarded as unnecessary detrimental deviations from or violations of an imaginary ideal practice (Hollnagel, 2015).

While this description of learning from incidents in health care as an expression of Safety-I thinking represents a simplification, it allows for the identification of two major problems with current approaches. Firstly, the focus on the extraordinary often demands quick solutions that are linked directly to the prevention of the undesirable event (Drupsteen and Guldenmund, 2014). In the theory of Argyris and Schön this might be referred to as single-loop learning (Argyris and Schön, 1996). Organisations exhibit single-loop learning when proposals for improvement fail to question underlying values, assumptions and policies. Single-loop learning might inhibit more powerful forms of learning that are essential for bringing about fundamental change and improvement. The need for double-loop learning is recognised in the literature on

learning from incidents (Drupsteen and Guldenmund, 2014, Lukic et al., 2012, Jacobsson et al., 2012), but is not commonly found in practice (Drupsteen and Hasle, 2014, Pilbeam et al., 2016, Sujan, 2015, Anderson and Kodate, 2015, Tucker and Edmondson, 2003, Akselsson et al., 2012).

Secondly, one might argue that the interventions that result from learning from incidents (i.e. the barriers, defences and safeguards) are not firmly grounded in a deep understanding of the way in which everyday clinical work actually unfolds (i.e., WAD). As a result, learning from incidents runs the risk of not properly appreciating the positive contribution of performance adjustments and dynamic trade-offs to the delivery of safe care (Cook, 2013). Often, the proposed interventions are aimed at bringing the WAD that was observed in the incident situation closer to the WAI by the organisational leadership – without questioning the validity or appropriateness of WAI. In the worst case, the proposed interventions introduce even more constraints, tensions and contradictions into the system, which have to be dynamically managed by front-line staff, resulting in what has been described as an arms race between performance-constraining interventions (WAI) and performance-adjusting workarounds (WAD) (Debono and Braithwaite, 2015). When workarounds are driven underground, the gap that manifests between WAI and WAD continues to widen, and learning from experience is made more difficult (Perry and Wears, 2012).

3.2 Learning from everyday clinical work – A Safety-II perspective

An alternative, or complementary, way of thinking about safety is to regard safety not as the absence of something (i.e. incidents), but rather as the presence of something – the ability to make dynamic trade-offs and to adjust performance in order to meet changing demands and deal with disturbances and surprises (Fairbanks et al., 2014, Hollnagel, 2014b, Hollnagel, 2014a, Sujan et al., 2015c, Sujan et al., 2015a). Modern health care systems are characterised by changing demands and finite resources giving rise to competing organisational priorities, such as the management of patient flows and time-related performance targets (Sujan et al., 2015c). As argued above, health care systems might be regarded more appropriately as Systems of Systems (Harvey and Stanton, 2014) or Complex Adaptive Systems (Braithwaite et al., 2013, Leveson et al., 2009, Robson, 2015). The complexity of this context creates tensions (Sujan et al., 2002) that clinicians have to resolve and to translate into safe practices through dynamic trade-offs on a daily basis (Sujan et al., 2015a, Sujan et al., 2015b). Managing tensions through trade-offs forms part of clinicians' everyday work, and they do not normally distinguish such activities from their technical work and the patient care that they undertake (Cook et al., 2000, Hollnagel, 2009).

Empirical studies of everyday clinical work provide a diverse range of examples of such performance adjustments in practice (Debono and Braithwaite, 2015, Sujan et al., 2015b, Braithwaite et al., 2016a, Perry and Wears, 2012). One specific example is the study of handover in emergency care, where clinicians need to make many different trade-offs (Sujan et al., 2015c, Sujan et al., 2014). For example, when ambulances are queuing at the emergency department, ambulance crews might hand over their patient to another crew waiting in line in order to save time. The second crew will then be less familiar with the patient when they eventually hand over the patient to the emergency department staff. Ambulance crews in this instance are

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trading the risk of not meeting clinical need in the community due to queuing with the risk of having a poor quality handover from a crew who are not familiar with the patient. The empirical work demonstrated that clinicians resolve such tensions dynamically, and sometimes in violation of the formal time-related performance target, based on the specifics of the situation and on their sense of “being worried” about the patient in their care (Sujan et al., 2015a, Sujan et al., 2015b).

Such empirical studies of everyday clinical work illustrate that much might be gained from shifting the focus of learning from extraordinary failures to ordinary performance adjustments that clinicians have to make on a daily basis. It might be tempting to managers and those who design clinical work to assume that when nothing goes wrong this was down to prudent system design, and to focus their efforts at learning from experience exclusively on negative events (Perry and Wears, 2012). However, what empirical studies of everyday clinical work demonstrate is that the performance adjustments and trade-offs that clinicians make are often fundamental to keeping patients safe. From a Safety-II perspective it makes sense, therefore, to aim to learn from the ordinary (i.e. everyday clinical work), and to identify lessons for how successful performance adjustments can be supported in practice. In addition, learning from experience should also aim to make the gap that pertains between WAI and WAD visible, without judging one over the other, and to allow stakeholders to be mutually aware of each other’s perspective.

In practice there might be different ways to go about operationalising the Safety-II perspective on learning from incidents. For example, one might focus on hassle situations, which can be defined loosely as any situation that causes clinicians problems during their daily work (Sujan, 2012, Sujan et al., 2011a). There are two main potential benefits of looking at hassle: firstly, “reporting” hassle stories or narratives can be scheduled as a normal part of safety management activities, and the reporting does not, therefore, rely on a trigger event such as an incident. The whole process of learning from experience can then operate more easily without threatening notions of errors, mistakes and patient harm. The learning process might be more inclusive, and could be delegated more readily to those at the frontline in order to create learning of relevance to the immediate work environment, as there will most likely be less legal constraints or fears of repercussions (Sagan, 1993). In other words, the learning process could be directed more easily towards improvement and less towards fact-finding and culpability assignment. Secondly, looking at hassle and, therefore, at everyday clinical work might allow a better understanding of the actual system dynamics, i.e. of the way performance adjustments and trade-offs are made. Reports of hassle typically contain not only descriptions of how hassle manifested itself (e.g. unavailable support equipment during a radiological procedure), but also how clinicians coped with the situation – how they adapted their behaviour in order to provide safe and good quality care. Examples of typical adaptations made by clinicians include the sharing of information with colleagues, informal discussion and negotiation to achieve distributed situation awareness (Rafferty et al., 2013), prioritisation of goals and activities, reformulation of goals, and offering and seeking help (Sujan et al., 2016a, Sujan et al., 2011b). When learning is directed only at the extraordinary incident, such insights are not normally available, because when an incident occurs

performance adjustments and adaptation have usually broken down, and their positive contribution is not visible.

A second example of how Safety-II learning could be put into practice is the integrated Safety-I / Safety-II learning approach described by Chuang and Wears (Chuang and Wears, 2015). The authors describe how investigation of incidents that involved central line (central venous catheter) infections led to a recommendation for the implementation of an evidence-based care bundle (i.e. a standardised set of steps), as well as to a recommendation to study WAD once the care bundle had been implemented. The care bundle represents an instance of WAI, and the organisation recognised that WAD would have to differ from this idealised assumption depending on the context. The accompanying study of WAD led to the identification of several workarounds (for example concerning the placement of the central line for certain patient groups). These workarounds were acknowledged, shared and reviewed in meetings in order to keep track of the workarounds and of their respective quality and merit.

Both examples illustrate potential benefits of learning from the ordinary – from everyday clinical work. They also demonstrate that learning from experience based on a Safety-II perspective should not be regarded as a discrete event. Learning from experience should be a continuous process that describes WAD, and that makes visible the gap between WAI and WAD.

4. The future of learning for improving patient safety

The above critique argues that health care organisations are largely driven by the Safety-I paradigm in their efforts to learn from experience in order to improve patient safety. This leads to approaches that aim to measure and to reduce patient harms by introducing barriers, safeguards, procedures and policies. However, the literature suggests that progress with improvements in patient safety has been slow (Sari et al., 2007, Vincent et al., 2008). Some have argued that the exclusive focus on incidents is detrimental to progress on patient safety, because in practice incidents are simply classified and reduced to convenient numbers (from a management perspective) with no real insights into everyday clinical work, while this analysis consumes most of an organisation's resources dedicated to patient safety (Cook, 2013). We contrasted this approach with the Safety-II perspective, which views performance adjustments and dynamic trade-offs as the source of both success and failure. We suggest that learning from experience should enable learning about how such adjustments and trade-offs are made in everyday clinical work.

In practice, this will require a learning process with sufficient depth to enable double-loop learning capable of appraising and reflecting on the gap between WAI and WAD (Braithwaite et al., 2016b). This does not mean that the aim of learning from experience should be to eliminate this gap – WAD will always be different from WAI (Hollnagel, 2016). Rather, there is a need for mutual appreciation among stakeholders at different levels of the health care system of how they perceive work and of how work unfolds in practice (Sujan et al., 2016a). The learning approach described in (Chuang and Wears, 2015), and alluded to above, is an example of how mindfulness of the gap between WAI and WAD can be harnessed in order to

implement a different approach to creating and managing flexible procedures. Procedures can support resilience if they promote performance variability, where appropriate, rather than constrain it (Wears and Hunte, 2016). Flexible procedures can support adaptation and performance variability by providing different options and decision criteria to practitioners instead of prescribing a single best practice (Grote, 2015, Hale and Swuste, 1998). Staff can provide input about the trade-offs that they are faced with, and about what good trade-offs look like in practice. In this way, WAD can be brought back up from below ground to the surface, and it can feed into the learning process. A shift in mindset and the ability for deeper learning are required, which regard an increasing discrepancy between WAI (the procedure) and WAD as a trigger for reviewing and revising the assumptions about the work and the work arrangements, rather than as a prompt for more stringent enforcement of compliance (Wears and Hunte, 2016).

There is also a need for creating greater breadth in the learning process by involving stakeholders from all levels of an organisation (Lukic et al., 2012, Carroll and Edmondson, 2002), and by creating opportunities for staff to participate in the analysis of problems and the development of improvements (Lukic et al., 2013). There is usually a broad range of individuals from different backgrounds involved in the delivery of health care services. An example might include the ambulance dispatcher picking up an emergency call, paramedics treating the patient on scene and handing over the patient to the emergency department, nurses in the emergency department receiving and caring for the patient, administrative staff booking in the patient, nurse managers overseeing the availability and allocation of resources in the department, clinicians of various grades diagnosing and treating the patient, a range of professionals from the diagnostic support services that might be requested, and finally doctors and nurses from other hospital departments to which the patient might be admitted. Even though all of these individuals play a part in the patient's care, research suggests that communication and problem solving tend to take place in professional silos (Creswick et al., 2009). One might assume that the divide might be even greater among the health professions and individuals with a management background. Overcoming professional boundaries is a difficult, but necessary task in order to improve the learning process.

An example of a learning process that aims to increase the breadth of learning is the learning from hassle approach described briefly in the previous section (Sujan, 2012, Sujan et al., 2011a). With this approach, ownership of the learning process is delegated to the local level, and responsibility for leading on improvement activities is assigned to health care professionals and other frontline members of staff (rather than departmental managers or risk managers). However, delegating authority in itself is not sufficient – staff require adequate resources and senior management backing in order to implement improvements (Lukic et al., 2013, Sujan, 2012).

A third practical implication is the need to consider the context of learning from incidents (Lukic et al., 2012). Current approaches in health care rely almost exclusively on incident reporting systems that implement a formal approach to reporting and learning, to the neglect of other, less formal learning opportunities (Sujan, 2015, Iedema et al., 2006). The research on communities of practice (Wenger and

Snyder, 2000) suggests that people who engage in similar activities sometimes form groups, where participants can share their experiences and foster informal learning that can give rise to creative solutions to problems. An example of a community of practice that extends across organisational boundaries might be paramedics from the ambulance service and staff from the emergency department, who meet for informal lunchtime discussions to explore problems with the handover of patients and the queuing of ambulances. Such informal settings afford the opportunity for participants to reflect on the gap between WAI and WAD, the tensions and the trade-offs that are required, and to appraise different options. Health care organisations should consider such informal learning processes as part of the overall organisational approach to learning. In this way, resources could be made available to develop and to support communities of practice.

At the policy level, decision-makers might have to accept that it might not be possible to reduce the number of incidents in health care by further increasing the bureaucracy imposed on clinicians (Braithwaite et al., 2015b). It has been pointed out that learning from incidents is an activity that takes place within a social, political and legal context (Le Coze, 2013, Lukic et al., 2012). Such context will influence how organisations perceive safety, what kinds of safety improvements are favoured and what kinds of safety data are produced to demonstrate improvement. There is a need to progress from purely reactive regulatory approaches that are based on measurement of outcomes and compliance rates towards proactive approaches that enable organisations to support health care professionals in making performance adjustments and dynamic trade-offs using their skills and expertise. Quantitative measures of resilience might remain elusive (Cook and Ekstedt, 2016), but useful qualitative data can be gathered readily through studies of everyday clinical work, interviews with staff and other qualitative approaches.

5. CONCLUSIONS

Despite the usually good quality, and often exceptional, care that health care organisations provide to patients, there continues to be an alarming rate of patient harm. Health policy makers and regulators are encouraging health care organisations to learn from incidents in order to improve patient safety. However, it seems unlikely that health care organisations will be able to make further progress on patient safety by simply doing more of the same – asking staff to report more incidents, developing more refined incident reporting and data classification systems, and analysing more incident data.

Health care is a complex domain, or a System of Systems, where there are many rapid changes, both in terms of treatment possibilities as well as in the health policy context, and clinicians are forced to navigate this complex landscape to the best of their abilities by making dynamic trade-offs and by adapting their behaviour to meet the demands of competing organisational priorities. From a Safety-II perspective, adaptive capacity and performance variability are the sources of organisational resilience. We have argued that learning from experience should be directed towards a better understanding of the nature of everyday clinical work and the contribution of performance variability in the delivery of safe care.

Processes for learning from experience in health care need to have greater depth and greater breadth. Organisations need to be able to acknowledge and to reflect on the gap between work-as-imagined and work-as-done in order to devise interventions for improving patient safety that provide practitioners with the flexibility to make the necessary trade-offs. Staff from all levels of the organisation should be empowered to make active contributions to the understanding of problems and to the development of actual improvements towards safer care. Organisations should consider investing further resources in supporting informal learning processes to enhance the overall process of learning from experience.

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