

original article

Exploiting mistakes as learning opportunities to improve patient safety

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Mistakes are a reality in healthcare systems as in any other industry. In the 2000, the Institute of Medicine report "To Err is Human" estimated that 44,000-98,000 US patients die every year in hospitals as a result of medical errors (Kohn, Corrigan & Donaldson, 2000). Recent statistics from Latin America countries indicate that 10% of patients receiving medical care suffer some kind of unwanted consequences related directly to the medical act; the numbers go up to 20% for inpatients (WHO, 2011). Although capturing the magnitude of healthcare casualties is difficult because they are spread temporally and geographically (Leape, 1994), it is estimated that more people die annually as a result of medical care than in car accidents and plane crashes, or from breast cancer and AIDS (Kohn et al., 2000; Berwick & Leape, 1999).

Adverse events that happen in hospitals are preventable (NHS, An Organisation with a Memory, 2000), provided that hospitals develop their capacity to exploit past experiences as learning opportunities (Aspden, Corrigan, Wolcott & Erikson, 2004; Aspden, Wolcott, Bootman & Cronenwett, 2006; Edwards, 2012). To date, healthcare systems in countries such as the USA, Australia and the UK have launched initiatives for developing hospitals' capacity to exploit their and other organizations' experience in order to deliver safer and more reliable medical care. Several priorities were set, such as implementing error reporting systems, designing organizational structures capable of sustaining change, empowering patients, developing

teamwork abilities, or developing a blame-free culture in which one feels safe to acknowledge and discuss medical errors and mishaps (Committee on Quality of Health Care in America, IOM, 2001; NHS, 2000; Australian Commission on Safety and Quality in Healthcare, 2010; WHO, 2012). Although important advances have been made, especially in terms of detecting errors, the success of these initiatives has been mixed and pace of change is still far from matching the initial objectives (Leape & Berwick, 2005).

System-wise instruments and local mechanisms for exploiting mistakes as learning opportunities

Health care systems have drawn on the experience of high risk industries and adopted centralized error reporting systems. Anonymous error reporting systems facilitate error detection in order to analyze their underlying causes and prevent them from happening in the future (Carroll & Edmondson, 2002; Leape, 1994; Hudson, 2003; Mahajan, 2010; Cohen, 2000). Implementing this kind of formal collective learning mechanisms was an important breakthrough in the efforts to improve patients' safety and increase quality of care, as it allowed a better estimation of the magnitude of the medical error phenomenon (Brennan & Safran, 2004), and it led to the development of standardized protocols and procedures (Australian Commission on Safety and Quality in Healthcare, 2010). However, implementing error reporting systems as learning instruments is not always easy, as medical professional culture can represent a significant hindrance to

implementation. For example, qualitative research has found that health professionals are rather reluctant to adopt these kind of systems (Iedema, Allen, Sorensen & Gallagher, 2011; Waring, 2005). Physicians have been reluctant to embrace such initiatives due to the fear of being blamed, the lack of trust in the utility of it, and the belief that it is an extra administrative burden in their already busy agenda (Waring, 2005).

Although the role of error reporting systems cannot be underestimated, empirical data suggest that error reporting depends on actual error rates, but more importantly on the willingness to report them—which is highly dependent on the work interpersonal climate (Edmondson, 1996). Conducting a mixed methods study investigating factors influencing error reporting rates in nurses units, Edmondson (1996) found that high error rates were reported in units in which nurses felt that they trusted and respected each other, and that if they were to admit making a mistake, they would not be judged or rejected by colleagues. Using interviews and observation, the author found that in units in which nurses did not share such a high quality interpersonal climate, they were more likely to not report errors when they happened. These results support the hypothesis that error reporting is actually a function of actual error rates and the willingness to engage in error reporting. Organizational behavior research suggests that capitalizing on past experiences in order to improve future performance is a rather local and team/unit phenomenon, and not an organizational-wide one per se (Edmondson, 1999; 2002; Lipshitz & Popper, 2000). Health professionals reflect on their activity, and use it as a source for improving future performance, but lessons learned tend not to cross the boundaries of the department (Lipshitz & Popper, 2000); and error rates were found to be smaller in nurses

units in which all the members of the unit were involved in all stages of error reporting, error analyzing, identifying solutions to avoid them in the future and implementing the solutions, as opposed to when different stages were the responsibility of different members of the organization (Drach-Zahary & Pud, 2010). These findings stress the role unit-level practices and team climate play in exploiting errors as learning opportunities.

Hospitals as organizations have often been described as having a culture dominated by blame, fear and defensiveness, that blocks open communication and has a negative impact on health professionals' willingness to engage in error acknowledgement and analysis (Kohn et al., 2000; Berwick & Leape, 1999; Collins, Block, Arnold & Christakis, 2009; Catino, 2009; Iedema, Jorm, Braithwaite, Travaglia & Lum, 2006; Iedema et al., 2011; Waring, 2005). Admitting a mistake is not easy in any industry, but it is particularly difficult when the smallest error can have catastrophic implications for patients' life and health professionals' careers. Admitting one's own mistakes can easily be interpreted as incompetence or professional insecurity (Edmondson, 2004), while bringing up for discussion someone else's mistakes can be taken as lack of collegiality (Leape, 2006). The result is a professional environment with low tolerance for errors, or at least for open discussion of errors (Waring, 2005). Congruently, medical schools train highly independent health professionals, who are capable of making decisions on their own under time pressure and in emotionally demanding situations (Hoff, Pohl & Bartfield, 2006). Doctors in particular are educated in a rather individualistic spirit and are taught to rely only on themselves (Waring, Harrison & McDonald, 2007). This favors a culture of mistrust and blame, and leads to a working environment that lacks transparency and the capacity for collaboration (Leape et al.,

2009). A culture of fear and blame adds to a highly hierarchical organizational structure in which nurses and residents often report feeling uncomfortable to openly address physicians (Reeves et al., 2009), even in matters that are directly related to patients' well-being (Edmondson, 2003). Establishing an open, defensive-free communication environment is key point in developing an organization's capacity to capitalize on its failures as assets for future improvement (Argyris, 2000; Senge, 1994; Carroll & Edmondson, 2002). Field research suggests that developing these kinds of working environments is more likely to be successful when addressed at the department level, as opposed to when they address the entire organization (Edmondson, 1999; 2002).

Facilitating learning from failures as a social, interpersonal phenomenon

Several characteristics have been identified as being particularly relevant for developing medical departments' capacity to exploit their past experiences as learning opportunities such as a coaching oriented leadership style, a psychological safe unit climate, and empowering low status health professionals (Edmondson, 1996; 2003; Lipshitz & Popper, 2000; Edmondson, Bohmer & Pisano, 2001, Nembhard & Edmondson, 2006; Hirak, Peng, Carmeli, & Schaubroeck, 2012; Tucker, 2007; Waring et al., 2007). Leaders can either facilitate or block collective learning from failures. The relationship was found to be consistent in nurse units (Edmondson, 1996), mixed surgical units (Edmondson, 2003), and medical departments as a whole (Lipshitz & Popper, 2000; Nembhard & Edmondson, 2006; Hirak et al., 2012). Leaders who are open to admitting their own mistakes, who encourage members to speak openly, who are problem-focused, as opposed to blame-focused, when they come to know about an error, who acknowledge the contribution of all team members irrespective of their

organizational position, and model feedback asking and feedback giving, were found to increase health professionals' willingness to engaging in open communication about their work and the problem they encounter on a day to day basis. One of the mechanisms through which they manage to do this is by creating a psychological safe climate, in which unit members feel that they can bring up for discussion sensitive issues. Openly admitting medical errors and failures exposes to criticism (Edmondson, 1999; 2004). In order to speak honestly about it, people have to trust that they will not be judged, and that they will be helped to manage the problem and its implications. Research has shown that team-leaders are key facilitators of such an interpersonal climate in medical organizations (Edmondson, 1996; Nembhard & Edmondson, 2006; Hirak et al., 2012). A key feature that distinguishes medical organizations is the pronounced power imbalance between different professional categories. Nurses, for example, perceived themselves as being less entitled to address doctors, but not the other way around (Reeves et al., 2009). Nurses were found to admit that they censure themselves, and do not share valuable information, or do not confront doctors even when they might think that a mistake is being made (Edmondson, 2003; Edmondson et al., 2001; Waring et al., 2007). People tend to be very accurate evaluators of their status within a group, and they rarely engage on their own in status self-enhancement (Anderson, Srivastava, Beer, Spataro & Chatman, 2006). For this reason, those that hold power within the organization can facilitate all members' participation in voicing problems in order to improve future performance (Bunderson & Reagans, 2010).

Conclusions

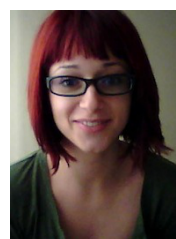
Improving patients' safety and quality of care is a priority for healthcare systems around the world. Important progress has been made by

implementing error reporting systems, but the availability of these instruments does not guarantee that health professionals will use it, or that lessons learned from it will be implemented. System level, centralized solutions are not always easily embraced by medical personnel, and they sometimes find ways to work around them (Iedema et al., 2006; Iedema et al., 2011). Research on collective learning found that exploiting past experiences as learning opportunities is a rather local, interpersonal phenomenon, and not an organization-wide one. This suggests that capitalizing on errors in the medical system might benefit if it is conceptualized as an informal, department-level process. ■

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