

Information: Empowering Healthcare Professionals in Fostering Safe Systems

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Maximise quality and patient safety through rapid access to current, credible, evidence-based practice.

INTRODUCTION

Medical practice has undoubtedly improved substantially with time, however there yet remains a staggering proportion of medical harm taking place in hospitals, indicating there is yet a challenge to overcome. This whitepaper focusses on the empowerment of doctors, nurses, pharmacists, therapists, and allied health professionals, as well as patients and their families, to actively participate in a system designed to reduce the likelihood of errors in healthcare. Here we discuss how rapid access to current, credible, evidence-based practice ensures improved quality and patient safety through unification of safe decision-making and processes, ultimately maximising patient care.

BACKGROUND

In December 1999, the Institute of Medicine released its seminal report, “To Err is Human: Building a Safer Health System,” with astonishing data on the impact of preventable errors in healthcare. As the 20th anniversary of this publication approaches, we must ask: **are we satisfied with the progress achieved?**

Despite increasing efforts and real progress in healthcare improvement (none of which should be minimised), the current statistics on medical harm today continue to be staggering. The WHO reports that in developed countries, as many as 10% of patients are harmed while receiving hospital care.

While the cost of such harm on patients’ lives is dramatic so is the financial cost of these healthcare failures. The WHO states that additional hospitalisation, malpractice litigation, disability, lost productivity, and medical expenses add up to financial loss reaching as high as US\$ 19 billion annually in some countries.

When it comes to patients, we must consider the world’s aging population – the percentage of elderly is projected to jump to 1.6 billion in 2050,¹ and the additional burden of chronic illnesses, the prevalence of which grew by a stunning 33% between 1990 and 2010 in elderly. This increasingly aging population with chronic diseases and comorbidities leads to more complex cases – which brings us to another element of this equation: the unstoppable explosion of medical knowledge.

By 2020, all medical knowledge will double every 73 days.² A study conducted with primary care physicians concluded that “In order for physicians to keep up to date on all of the publications, it would take them about 627.5 hours each month.”³

1. <https://www.census.gov/content/dam/Census/library/publications/2016/demo/p95-16-1.pdf>
<http://www.worldometers.info/world-population/population-by-country/>

2. Densen P. Challenges and opportunities facing medical education. *Trans Am Clin Climatol Assoc.* 2011;122:48–58.

3. *Journal of Medical Library Association* Oct 2004; 92(4): 429–437.

Add up these elements and we are left with an increased complexity of care driven by an aging population with chronic diseases and the ever-growing challenge of keeping abreast with current knowledge – the result of this equation can mean more harm; therefore we must take action to address these challenges.

IF WE WANT DIFFERENT RESULTS, WE NEED A DIFFERENT APPROACH

The approach suggested by the findings of *To Err is Human* was that preventable errors and the associated costs could be mitigated by the creation and implementation of “safe systems” able to systematically recognise and minimise sources of human errors. It was this concept, that sustainably improving the quality and safety of hospitalised patient care would best be addressed utilising a *systems approach* rather than through individual, unrelated, scattered hospital and provider activities, that was the major technical contribution of unveiling the jarring preventable error figures.



“The majority of medical errors do not result from individual recklessness or the actions of a particular group – this is not a ‘bad apple’ problem. More commonly, errors are caused by faulty systems, processes, and conditions that lead people to make mistakes or fail to prevent them.”

SAFE SYSTEMS IN HEALTHCARE

“Safety is a characteristic of systems and not of their components. Safety is an emergent property of systems.”⁴

Whereas one can describe a system as a series of processes, I’d invite you to expand on this concept and add the component of safety:



A safe system is composed of safe processes allied to safe decisions.

The reason for this separation of processes and decisions lies in the very nature of healthcare delivery – a quick, fast-paced decision-making environment with ultimate impact on people’s lives. In such an environment, we need to improve the system if we are to improve outcomes.

SAFE PROCESSES

Errors can be classified into three categories: (1) human error which includes an inadvertent action, lapse, or mistake; (2) at-risk behavior which includes both intention and the violation of rules, policies, and procedures and makes a system vulnerable, increasing risk and (3) reckless behavior, defined as a conscious disregard of unreasonable risk.⁵

4. Cook, Richard I. Two Years Before the Mast: Learning How to Learn About Patient Safety. Invited presentation. “Enhancing Patient Safety and Reducing Errors in Health Care,” Rancho Mirage, CA, November 8–10, 1998.

5. Ochsner J. 2013 Fall; 13(3): 400–406.

The Just Culture Model asserts that all humans are fallible and prone to errors when the systems in which they practice are not error-proof, therefore giving space to errors. In this model, human error accounts for the majority of patient events.⁶ Thus, **improvement in outcomes is achieved through the development of system processes which make the occurrence of errors more difficult through means more complex than simple punishment of the offending individuals.**

The goal of the model is the development of processes which aim to “*error-proof*” systems and provide support for safer actions throughout the course of patient care delivery. The development of safe and error mitigating processes is present in core requirements of standards for improvement of quality and patient safety such as the Joint Commission International Standards for Hospitals.

But many times, we leave our caregivers out of the systems developed. Today, clinicians often feel overwhelmed with requirements to follow “*standardised processes*” and “*best practices*,” to fill out a seemingly endless paperwork – without allowing these providers rapid access to the current, credible, evidence-based information on which the system model is founded. Such an approach fails to maximise success by excluding the clinicians, the very drivers of patient safety and quality, from the information on which the system of safe, high value care delivery is based.



By providing access to information in a usable and consumable manner, you can empower doctors, nurses, pharmacists, therapists, and other traditional providers, as well as patients and their families, to actively participate in the system designed to reduce the likelihood of errors.

Such processes can certainly be created from scratch (organically developed within a hospital or health system), but the challenges and resources (human and financial) are overwhelming, particularly given the exponential pace at which “*best practices*” and medical knowledge (such as genomics) is growing.

It is possible of course, to buy in this resource. Powerful, intuitive search engines such as ELSEVIER’s *ClinicalKey* and *ClinicalKey for Nursing* provide rapid mobile device access to impactful care information in the format most usable by differing provider types.

Once the safe process is designed, staff education and ongoing competency is crucial for successful system adoption and ongoing utilisation so that they are empowered as active members of the quality improvement movement.

Staff are not the only stakeholders who must be educated if the process is to be successful. As with all quality improvement and patient safety initiatives, *patient engagement* plays a critical role in implementing safe processes. Interactive videos and easy-to-read content are able to provide educational support to both healthcare professionals and patients.

As with all successful process improvement systems, the continuing monitoring and measuring of safety compliance offers recurrent opportunities for modification which leads to improvement. Similar to a Plan-Do-Check-Act (PDCA) cycle, the maintenance of safe systems is a continuing activity, and as new technologies, new techniques, and newly discovered knowledge emerge, easy access to the novel information is a “*must-have*” for all professionals involved in quality improvement.

6. Kyle M. Fargen, William A. Friedman, The Science of Medical Decision Making: Neurosurgery, Errors, and Personal Cognitive Strategies for Improving Quality of Care, *World Neurosurgery*, Volume 82, Issue 1, 2014, Pages e21-e29



The importance of error-proofing systems is crystal clear; however, safe processes alone cannot ensure safety in all steps of care, because such processes must be combined with individual decision-making activities.

SAFE DECISIONS

In many circumstances, diagnostic error is the result of *human* rather than *process* errors.⁷ As we work towards error-proofing our systems, ensuring that care is delivered *within an environment which supports safe decisions* is fundamental in reaching our goal. Clearly, individual physician decisions drive patient diagnostic and treatment care activities; in addition, physician decisions also directly and indirectly account for more than 80% of overall health care expenditures.⁸ Thus physician's decisions have a major impact on healthcare value (quality/cost). Nurses also play a leading role in value generation, as do pharmacists and other traditional care providers. Finally, patients themselves can dramatically influence health and healthcare value, both favourably and negatively, based on their behaviours and lifestyle choices.

The use of clinical practice guidelines and evidence-based guidance is considered a core practice of improved patient safety and quality care, as described by The Joint Commission International in the whitepaper *Clinical Practice Guidelines: Closing the Gap Between Theory and Practice*. (Read more about CPG's and their importance on Quality and Patient Safety [here](#))

To better understand the need for current, credible, evidence-based information in supporting clinical decision making, we must look at *how decisions are made* in healthcare settings.

Medical decision making is based on dual process theory; (1) a rapid, non-analytical, implicit, biased process frequently based in heuristics; and (2) an analytical, explicit process that relies on hypothetical and counterfactual reasoning, in which details are considered and challenged through the use of different information. Even though we tend to think decisions are always analytical, *the non-analytical, implicit system prevails* in human day-to-day decision-making processes, including the healthcare world. With the time pressures and competing priorities clinicians routinely face, most rely on intuitive, non-analytical, implicit, biased processes to a greater degree than on analytical reasoning. Although this rapid decision-making strategy can save time and often result in correct diagnostics and favorable patient care outcomes, it is by its nature more prone to error when patient cases are more complex⁹, and when clinicians are more stressed and short of time.

Nor are patients the only ones to suffer from the consequences of errors. M. O'Beirne et al. shared that 82.4% of doctors experienced negative emotions following incidents related to patient safety, with the impact of those emotions ranging in nature and severity from fear of future errors to frustration to loss of social trust.¹⁰ Nurses, too, often suffer on many levels over the course of their careers as a result of involvement in a medical error, even years after the error occurred.¹¹

7. L. Zwaan, M. de Bruijne, C. Wagner, A. Thijs, M. Smits, G. van der Wal, et al. Patient record review of the incidence, consequences, and causes of diagnostic adverse events Arch Intern Med, 170 (2010), pp. 1015-1021

8. Crosson FJ. Change the microenvironment: delivery system reform essential to controlling costs. The Commonwealth Fund website. <http://www.commonwealthfund.org/publications/commentaries/2009/apr/change-the-microenvironment>. Published April 2009. Accessed March 29, 2016.

9. Brett J. Bordini, Alyssa Stephany, Robert Kliegman, Overcoming Diagnostic Errors in Medical Practice, The Journal of Pediatrics, Volume 185, 2017, Pages 19-25

10. M. O'Beirne, P. Sterling, L. Palacios-Derflingher, S. Hohman, K. Zwicker Emotional impact of patient safety incidents on family physicians and their office staff J Am Board Fam Med JABFM, 25 (2) (2012 Mar-Apr), pp. 177-183

11. Amy R. Koehn, Patricia R. Ebright, Claire Burke Draucker, Nurses' experiences with errors in nursing, Nursing Outlook, Volume 64, Issue 6, 2016, Pages 566-574

IMPLEMENTING SAFE SOLUTIONS & PROCESSES

The creation, oversight, and support of leadership to ensure a successful decision-making environment is therefore essential if medical errors are not only to be avoided, but prevented. Again, one key strategy in fostering a safe decision-making environment is the provision of current, credible, evidence-based information to guide “best care” by all providers, at all points of care.



Two types of such impactful information solutions are powerful allies of clinicians in safe decision making: reference solutions and workflow integrated clinical decision support. The two information types are complementary, and a combination of both empowers providers of all types (as well as patients) with knowledge to practice safe clinical decision making.

Reference solutions are a robust support for clinicians. These “Pull” solutions require, by their nature and design, that the clinician actively seek information and search for information to a clinical question (thus, information is *pulled* by the clinician). Clinicians must be engaged in an analytical process of decision making in order to challenge or confirm their initial plan of care; then they can search for guidance from a massive repository of current, credible, evidence-based information. In other words, *reference solutions are powerful when clinicians know what they don’t know.*

Workflow integrated clinical decision support tools, on the other hand, *push* information to clinicians *whether or not the clinicians recognise that they need additional care information.* Based on the patient’s history and clinical scenario and status, these “Push” solutions provide information to clinicians even when *clinicians don’t know what they don’t know.* Thus when the stressed, overly busy clinician is engaged in the rapid, non-analytical, implicit, biased thought process that may lead to errors, a workflow integrated clinical decision solution such as Elsevier Order Sets will *push current, credible, evidence-based information for the clinicians’ consideration.* (Read more on Elsevier Order Sets [here.](#))

The implementation of both push workflow integrated and pull reference solutions can help foster a safe decision making environment by presenting and providing current, credible, evidence-based guidance to clinicians, enabling safe care delivery. (Read more on push and pull solutions [here.](#))

CONCLUSION

Certainly no one-size-fits-all solution can address the various major challenges faced by the diversity of current and future safe systems. However, available current, credible, evidence-based information does empower all healthcare professionals as well as individuals involved in and impacted by care decisions, strongly supporting their participation in processes improvement, and aligning the goal of increasing patient safety through the prevention of medical errors across all stakeholders.

Information nurtures both elements of safe systems – *safe processes* and *safe decisions.* Rapid access to current, credible, evidence-based practice guidance provides all healthcare players the right information in the right format at the right time and in the right place, empowering safe decision making by care providers which ultimately is best for all patients.

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Prior to Elsevier, Laís honed her interest in healthcare when she worked closely with organisations starting the journey for Quality Improvement and Patient Safety as a language advisor between hospitals and Joint Commission International (JCI) in Brazil. She led JCI Accreditation Standards translation projects and as an interpreter, had the opportunity to work closely with JCI surveyors and hospitals during accreditation surveys. This experience helped her to understand the importance and challenges of maintaining high quality standards in patient safety.

An entrepreneur at heart, Laís founded two successful companies that offered strategy consulting and translation services. Laís obtained her Bachelor's degree in Marketing from ESPM in Brazil, and her post-graduate degrees in Digital Marketing from ESPM; and Conference Interpreting and Translation from the Pontifical Catholic University of Rio de Janeiro.



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