Journey towards zero harm – Sustaining the delivery of quality of care through system nudges

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The global health crisis, triggered by COVID-19, accelerated healthcare disruption. It emphasised the role of evidence-based clinical knowledge and digital technology as enablers of continuous quality improvement and patient safety.

As the pandemic progresses, healthcare professionals (HCPs) around the world face similar challenges. Overworked and overtired HCPs struggled to remain aligned with the latest clinical information surrounding COVID-19 due to the rapid publication and dissemination of scientific research, further exposing the gap between knowledge and practice.
Clinical heroism

When the number of patient admissions reached unprecedented levels, the pandemic crisis highlighted our over-reliance on healthcare professionals to act as heroes. However, the notion of clinical heroism is not new, the global pandemic has simply brought this to the forefront of our attention. Clinicians are expected to go above and beyond to help overcome unexpected challenges associated with patients. Although individual solutions might help the patient being treated in the short-term, it is system fixes that improve care for the patients we are treating today and in the future. This can only be achieved with the creation and maintenance of safe systems, which require a solid synergy between people, processes, knowledge, and technology.

The need to foster safe systems was first highlighted in the report To err is human: building a safer health system and has since been recommended for over two decades. Despite many advances, patient safety remains a challenge in healthcare. According to the World Health Organization’s (WHO’s) Patient Safety Action Plan 2021-2030, in high-income countries, it is estimated that one in 10 people are harmed while receiving hospital care, and up to 15% of hospital spending is due to safety failures in care. In low and middle-income countries, estimates are one in four patients are harmed, with 154 million adverse events occurring annually due to unsafe hospital care, contributing to around 2.6 million deaths. The social cost of patient harm can be valued at between one to two trillion US$ a year. A human capital approach suggests that eliminating harm could boost global economic growth by over 0.7% annually.

Systems under crisis

The traditional definition of a system is “a set of principles or procedures according to which something is done”. Safe systems successfully connect safe processes and safe decision-making by including nudges in the choice architecture.

Behavioural theory suggests that rationality is limited by psychological factors, emotional associations, and mental assumptions that distort reality, hampering the rational decision-making process. It is in this context that the concept of nudge arises, popularized by the book “Nudge: Improving Decisions About Health, Wealth, and Happiness”. The book defines nudges as a tool capable of guiding behaviour, optimizing choices by encouraging safer and healthier behaviours, both from an individual and community perspective. The fundamental aspect of ‘nudges’ is the maintenance of the individual’s freedom of choice. Choice architecture encourages us to make decisions based on nudges, however, the decision to follow through with the prompt is yours to make.
Nudging towards safety

The use of nudges to encourage healthier decisions has been continuously explored. An example of the use of 'nudge' in health is the encouragement of organ donation. According to behavioural science, important psychological barriers prevent people from becoming organ donors, including the status quo bias - the tendency to maintain the status quo even when a change would be beneficial and is in line with our personal values and beliefs. In Ontario, Canada, a government experiment evaluated the use of nudges for donor registrations. Among the interventions, the researchers included the following phrases as nudges: "If you needed a transplant, would you do it?" and "How would you feel if you or a loved one needed a transplant and didn't get it? Please help us save lives and register today." The experiment observed an increase of up to 143% in the number of new registrations. In the UK, the Behavioural Insights Team, also known as the Nudge Unit, concluded that nudges in the organ donation registry could result in 100,000 new registrations per year, a 40% increase.

In Rio de Janeiro, Brazil, NudgeRio, a behavioural science project created by the João Goulart Foundation Institute, used nudges as a strategy to increase adherence and continuity of tuberculosis treatment. This was facilitated via telephone outreach, which aimed to collect feedback about the patient's condition and gently reminded them to return to the hospital for a control bacilloscopy.

It is important to note that patients are not the only ones positively impacted by small modifications to the choice architecture. Studies report that nudges can also positively influence the behaviour of HCPs. Through changes in the organisation of treatment options in the electronic medical record (EMR), research has shown a reduction of 12% in the prescription of aggressive treatments.

Safe nudges for HCPs can range from reminders of standard operating procedures to active support for clinical decision making. Consider the scenario of a nurse starting a shift at the inpatient care unit (ICU) and being handed over a post-surgical case. The nurse logs into the EMR and checks the care plan for that patient, which suggests the parameters to be measured and actions to be performed based on patient assessment and best available guidance. For this patient, bleeding management is included, and subsequent actions are based on a clinical practice guideline. The nurse's clinical decision is nudged by both checklist and guidance, avoiding errors of omission, and nudging towards evidence-based practice. As nudges are part of our day-to-day lives, they must be intentionally designed to promote safety by acting as reminders of safety measures or by fulfilling information gaps.

For patients, nudges can range from appointment reminders to active patient engagement actions. Let's revisit the scenario above, but this time, from the patient's perspective. The patient wakes up in their room and wants to stand up, but the bed rails in the upward position remind the patient that they should not do so by themselves. They then spot an education leaflet close to their bed. On this leaflet, there is information about fall risk, reinforcing what had been explained by the healthcare team before the patient was sent to the ICU. That reminds the patient not to stand up without calling for help – which is closely available by a red cord close to their bed. These two nudges are examples of knowledge sharing that leads to safer decisions that benefit the physical safety of the patient.
Navigating safely through the Quality and Patient Safety Journey

Nudges should ultimately be designed to increase navigability and support for clinicians and patients to make decisions that improve their well-being and the well-being of others.

Nudges may exist in analogue or digital technology formats – the latter being more sustainable and easier to promote and implement. As clinical knowledge continues to rapidly evolve, digital technology enables live updates that reach stakeholders faster.

Nudges play a role in improving navigability, as highlighted in the recently updated Quality & Patient Safety (QPS) Journey, adopted and developed in partnership with the National Society of Quality of Care and Patient Safety in Brazil.

The proposed journey describes the six key pillars of a system that promote patient safety:
Community Engagement and Health Literacy

In 2020, we faced a global challenge of communicating information about a new virus to 7.83 billion people. It was the first pandemic in the era of digital networks, which enabled social distancing through remote working, remote communications, and telemedicine. However, it also exposed what the WHO described as an infodemic.

Research suggests that in the first three months of 2020, nearly 6,000 people globally were hospitalised because of coronavirus misinformation. During this period, researchers estimate that at least 800 people may have died due to misinformation related to the pandemic. Among the most viewed English videos relating to COVID-19 on a video streaming platform, 27.5% contained non-factual information, reaching 62 million views worldwide.

Leveraging digital technologies to empower communities with accurate knowledge is paramount to nudge people towards safe behaviour. For example, an online game called Go Viral! was developed through a partnership between Cambridge University and the UK Cabinet Office, to improve the recognition of fake news. Previous research has shown that just one play can reduce perceived reliability of fake news by an average of 21%. Understanding the need to deliver evidence-based information, Elsevier launched the Novel Corona Virus Information Center in 2020, a hub providing expert, curated information for the research and health community on SARS-CoV-2 and COVID-19.

Information Management

Healthcare system leaders must work to ensure that the right information is provided at the right time and at the correct point of a patient’s healthcare journey. The COVID-19 pandemic has accelerated the speed of change in processes and procedures from days to minutes. High patient admissions to acute units, infection prevention measures, staff redeployment and PPE scarcity were all contributing factors that facilitated process changes and encouraged adaptation that nudged staff in the safest direction possible. The use of digital technology is a key facilitator of this change as it integrates knowledge and embedding new policies and processes directly into the workflow.

For example, the shortage of N95 Filtering Facepiece Respirator (FFR) meant hospitals had to be agile and aware of the growing body of evidence shared by authorities, in order to adapt their policies for contingency capacity strategies. Looking forward post the pandemic, the speed of change in this process might reduce, however, the need to ensure that process changes are accurate, timely and adhered to by staff in a sustainable way remains.
Staff Education and Skills

The growing body of clinical knowledge demands continuous dedication from HCPs to keep up-to-date and sustain the delivery of quality care. It is estimated that the doubling time of medical research was approximately 50 years in 1950, and by 1980, this is thought to have accelerated to an estimated seven years. In 2010, the estimates decreased to three and a half years, and by 2020, down to just 73 days. In this scenario, remaining aligned is an ever-growing challenge.

Over the past few months, high turnover rates have been increasing due to the unfortunate statistics on infection and death rates among HCPs working on the front line. More than 1.6 million healthcare workers have been infected in 34 countries and the WHO estimates that at least 335,000 healthcare workers lost their lives to COVID-19.

To mitigate against staff shortages, the Centers for Disease Control and Prevention (CDC) suggested shifting HCPs who work in acute care to other patient care activities in the facility, the organizations also need to ensure these HCPs have received appropriate training to do so. Digital technology can be a sustainable education strategy. According to the WHO, in its State of the World’s Nursing Report - 2020, digital technology is playing an increasing role in both education and practice of the nursing workforce.

To complicate this equation, healthcare is recognised worldwide as a pressurised industry. HCPs are at risk for anxiety, depression and burnout. Severe burnout syndrome affects as many as 33% of critical care nurses and up to 45% of critical care physicians. Responding to this growing challenge, Elsevier has developed a Mental and Behavioral Health Hub, with resources to support clinicians resilience as they care for patients in challenging environments.

Care of Patients

The gap between what clinicians know versus what they do in practice is traditionally described as the “know-do gap”. It is a new term used to describe an old problem that has been further highlighted during the pandemic crisis. A 2018 report from The Lancet Global Health Commission stated that “Poor-quality care is now a bigger barrier to reducing mortality than insufficient access.” The annual cost of waste from overtreatment or low-value care is estimated between $75.7 billion to $101.2 billion, and healthcare costs are 75% higher for patients receiving uncoordinated care.

Bridging the “know-do gap” starts with the transformation of read-only information into actionable content that can be integrated into the workflow of the healthcare worker. Creating these integrated pathways, protocols and guidance should be prioritised by a safe system architecture with the right nudges.
Nudging towards safety

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In Rio de Janeiro, Brazil, NudgeRio, a behavioural science projects unit created by the João Goulart Foundation Institute, used nudges to create strategies to increase adherence and continuity of tuberculosis treatment: telephone approach, whose objective it is to collect feedback about the patient’s condition, in addition to reminding them to return to the hospital for a control bacilloscopy; and the distribution of a motivational booklet, which aims to encourage the correct and regular use of antibiotics distributed.

Patient Participation

The shift in focus towards patient-centric care has brought an increased awareness of the need to engage and include patients as active partners. The continuum of care for patients with chronic diseases shines a light on their active role in disease management. While treating patients with chronic conditions was named one of the top challenges facing doctors in 2020 by Medical Economics, the pandemic accelerated the adoption of digital technology to improve access to care and continuous monitoring.

Patient participation minimises the paternalistic model of healthcare, under which clinicians are solely responsible for the outcome. This leads to a gradual shift towards models of care that allow patients to take more active roles in their healthcare journey together with the clinician. Activating patients has proven benefits, with engaged patients having 12.5% fewer hospital admissions and 5.3% lower overall medical costs.

Moving forward, system architects need to rethink how digital technologies can be effectively used to nudge patients to participate in their health, fostering safe behaviour in the care continuum.

Research and Continuous Improvement

The current healthcare crisis has unified and accelerated research efforts globally. There became an unprecedented need to discover, publish and promote findings that were clinically sound. Ground-breaking research such as the development of the first vaccines that doubled our efforts against Sars-Cov-2, sharing of best practice protocols, to advance the treatment of patients experiencing respiratory failure.

Applying research into day-to-day practice as continuous improvement is a characteristic of a system that evolves as scientific, clinical and operational knowledge changes. Digital technology serves as way to democratise knowledge and ensure that the system is designed to nudge the environment into a culture of evidence.
Why Knowledge and technology are integral to your Quality Improvement and Patient Safety Program

In conclusion, knowledge-driven digital technology can be a great ally for healthcare leaders to design sustainable choice architectures that nudge healthcare stakeholders into safer decisions. Nudges fundamentally guide users while respecting their freedom of choice, increasing sustainability of safety within the six pillars of the Quality and Patient Safety Journey.

As systems progress and evolve, healthcare leaders must embrace their roles as choice architects, clinical stakeholders, identifiers, and reporters of system vulnerabilities. As clinical heroism shifts to safe systems, we all must become active system stakeholders to promote change and improve the quality of care and patient safety.

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