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Transforming concepts in patient safety: a progress report

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Received 20 December 2017
Revised 4 June 2018
Accepted 21 June 2018
Published Online First 17 July 2018

To cite: Gandhi TK, Kaplan GS, Leape L, *et al*. *BMJ Qual Saf* 2018;**27**:1019–1026.

ABSTRACT

In 2009, the National Patient Safety Foundation's Lucian Leape Institute (LLI) published a paper identifying five areas of healthcare that require system-level attention and action to advance patient safety.The authors argued that to truly transform the safety of healthcare, there was a need to address medical education reform; care integration; restoring joy and meaning in work and ensuring the safety of the healthcare workforce; consumer engagement in healthcare and transparency across the continuum of care. In the ensuing years, the LLI convened a series of expert roundtables to address each concept, look at obstacles to implementation, assess potential for improvement, identify potential implementation partners and issue recommendations for action. Reports of these activities were published between 2010 and 2015. While all five areas have seen encouraging developments, multiple challenges remain. In this paper, the current members of the LLI (now based at the Institute for Healthcare Improvement) assess progress made in the USA since 2009 and identify ongoing challenges.

INTRODUCTION

The National Patient Safety Foundation (NPSF) created the Lucian Leape Institute (LLI) in 2007 to provide a strategic vision for improving patient safety. Composed of national leaders with a common interest and expertise in safety, the LLI was charged with identifying new approaches to improving patient safety; inspiring innovation necessary to expedite the work; creating significant, sustainable improvements in culture, process and outcomes and encouraging key stakeholders to assume significant roles in advancing patient safety.

At the time, the major challenge of improving patient safety was not a technical issue of devising new systems, but a cultural issue of creating an environment in which such systems could take root. The founding members set an aspirational vision for transformation in a paper that identified five major concepts for system-level action: (1) medical education must be redesigned to prepare new physicians and other health professionals to function in these new cultures; (2) care must be delivered by multidisciplinary teams working in integrated care platforms; (3) healthcare workers need to work in safe environments and find joy and meaning in their work; (4) patients must become full partners in all aspects of designing and delivering healthcare and (5) transparency must be a practiced value in everything we do.[1]

The LLI recognised that articulating these transforming concepts was not enough. Healthcare leaders needed to be persuaded to implement them. In 2009, the LLI began to convene expert roundtables to address each concept and engage stakeholders. Results were disseminated in reports published between 2010 and 2015, and the major recommendations are summarised in this paper. While multiple challenges remain, encouraging progress has emerged in each of these areas.

MEDICAL EDUCATION REFORM

Equipping doctors to improve the safety of healthcare systems is the task of medical education, not just in medical schools, but across the continuum of training and practice. *Unmet Needs: Teaching Physicians to Provide Safe Patient Care*[2] examines the need for education reform, describes the changes required and makes specific recommendations directed at medical schools, teaching hospitals and accrediting bodies (table 1). While it is essential for all members of the team to develop these skills, this report focused on physicians as the starting point.

Progress

In recent years, medical school curricula have increasingly included patient safety

Table 1 Key recommendations from *Unmet Needs: Teaching Physicians to Provide Safe Patient Care*

Target of recommendation	Recommendation
Medical school and hospital leaders	Place highest priority on creating a learning culture that emphasises patient safety, professionalism, transparency and valuing the individual learner. Eliminate hierarchical and authority gradients. Emphasise that professionalism includes demonstrating mutual respect and non-tolerance of abusive or demeaning behaviour. Declare and enforce a zero-tolerance policy for confirmed egregious disrespectful behaviour by faculty, staff or residents. Promote the development of interpersonal skills, leadership, teamwork and collaboration among faculty and staff. Provide incentives and resources to enhance faculty capabilities to teach and practice patient safety and to be effective role models. The selection process for admission to medical schools should emphasise attributes that reflect professionalism and orientation to patient safety, such as compassion, empathy and collaboration.
Medical schools	Treat patient safety as a science that encompasses human factors, systems theory and open communication. Emphasise the shaping of desired skills, attitudes and behaviours as set forth in the core competencies defined by the IOM, the American Board of Medical Specialties and the Accreditation Council for Graduate Medical Education. The educational experience should be coherent, continuing and flexible throughout undergraduate medical education, residency and fellowship training and lifelong continuing education.
Accrediting bodies	Amend medical school accreditation requirements and residency programme requirements to include expectations for the creation of learning cultures and the development of patient safety-related behavioural traits. Survey medical schools to evaluate education priorities for patient safety and the creation of school and hospital cultures that support patient safety.

EHR, electronic health record, IOM, Institute of Medicine.

and safety science, and these concepts have also become more common in education for other clinicians and frontline staff. For example, the American Medical Association's Accelerating Change in Medical Education Consortium brought medical schools together to innovate, develop curricula and share best practices, including those addressing quality and safety. The Accreditation Council for Graduate Medical Education Clinical Learning Environment Review (ACGME CLER) programme requires medical resident participation in quality and safety learning. Recently, the Association of American Medical Colleges initiated a programme to create a shared understanding of Quality Improvement and Patient Safety competencies across the full continuum from medical school to continuing practice.

Other clinical disciplines, particularly nursing, have often pioneered educational pathways, and a concerted effort is underway to emphasise the importance of interprofessional teams. The Quality and Safety Education for Nurses programme has focused on enhancing education around safety science in nursing schools for more than a decade. More recently, the National Collaborative for Improving the Clinical Learning Environment highlighted the 'patient safety gap' in the education and training of all clinicians and provided clear recommendations for improvement.[3]

To assist healthcare students and professionals in building core skills in improvement, safety and leadership, the Institute for Healthcare Improvement (IHI) developed a web-based interactive educational programme called the Open School. More than 650 000 learners have enrolled in the Open School since it opened its virtual doors in 2008. To address the need for training in postgraduate medical education, in 2012 the NPSF created a course in patient safety and safety science that more than 7000 learners of diverse disciplines have used. Several universities have developed graduate education and fellowships in quality and safety, and clinicians, risk managers, pharmacists, executives and others have pursued these as well as certificate programmes and professional certification in patient safety.[4]

Remaining challenges

Still, opportunity lies ahead for greater consistency in how health professionals learn about patient safety. A 2016 report from ACGME CLER reveals gaps in areas such as feedback on safety reporting and experiential learning, lack of awareness of the range of patient safety issues and shortage of opportunities for interprofessional system-based improvement efforts.[5] Contributing to this learning gap is a shortage of academic faculty with safety and quality improvement expertise.[6]

Continuing education requirements for attending physicians are highly variable. While some medical specialties require continuing education in patient safety, the American Board of Internal Medicine recently removed it as a requirement from Maintenance of Certification.[7] Healthcare organisations would benefit from encouraging study of safety science by all team members, including board members, and operationalising ways to achieve continuous learning as safety science expands.

As these and other activities gain momentum, the core agenda remains consistent, clear and urgent: to mainstream the preparation of health professionals' awareness, skills, commitment and practical training about the scientific pursuit of safer care. Embracing

Table 2 Key recommendations from *Order from Chaos: Accelerating Care Integration*

Target of recommendation	Recommendation
All stakeholders: federal and state governmental agencies, consumer groups	Create mechanisms for developing a shared understanding among public and private stakeholders regarding the link between care integration and patient safety. Use working groups and public forums, best practices and patient stories to be catalogued and disseminated.
Healthcare leaders and practitioners, public	Patients and families must become active participants in process improvement and design and redesign efforts and review organisational performance.
Regulatory and accrediting bodies	Create methods of measuring care integration, along with robust assessment and evaluation metrics and incorporate these measures into public reporting systems.
Medical schools, professional societies, non-profits	Provide education and training for executives, boards, clinicians and medical students that focuses on patient safety and care integration.
Researchers, industry	Develop the technology and infrastructure to allow for national spread of organisational and operational expertise to support care integration.

the science of safety in medical education is crucial to the future health and well-being of patients, families and communities.

CARE INTEGRATION

Order from Chaos: Accelerating Care Integration[8] concludes that poor care integration is linked to adverse events, and improvements in this area should be among the top priorities for achieving a more consistently safe, effective and efficient healthcare system. The report noted the need for establishing a shared understanding among public and private stakeholders, including the media and consumer advocacy groups, regarding the link between care integration and patient safety. Best practices for improving care integration need to be developed and widely disseminated (table 2).

Progress

With an increased call for improved coordination of care and focus on patient safety across the care continuum, methods for improving handoffs and communication among teams, providers and patients are gaining traction.[9] Today the focus on population health and market-specific shifts in payment models serve as incentives for greater care integration and coordination.

Progress has been made to develop systems and structures to encourage and incentivise care integration. Accountable Care Organisations (ACOs) have brought together groups of health providers to incentivise better quality care at a lower cost. Likewise, the development of the patient-centred medical home aims to reorganise and reinvigorate primary care, and early evidence shows promise in achieving lower costs, improved patient experience and better care quality.[10]

Other encouraging examples of improved care integration include Project Re-Engineered Discharge (Project RED), the Patient-Centered Outcomes Research Institute (PCORI)-funded Project ACHIEVE (Achieving Patient-Centered Care and Optimized Health In Care Transitions by Evaluating the Value of Evidence) and the Johns Hopkins School of Nursing–led Community Aging in Place: Advancing Better Living for Elders (CAPABLE). For example, Project RED developed strategies to improve the hospital discharge process to promote patient safety and has been proven to reduce rehospitalisations and yield high rates of patient satisfaction.[11]

Finally, the increase in employed physicians and continued refinement of the electronic health record have accelerated care integration. Improving interoperability of health information technology has been a major initiative at the federal level to improve information flow across the entire care continuum.[12]

Remaining challenges

Despite incremental improvement, coordination and integration of care remains difficult, particularly for patients with multiple chronic conditions.[13] Even with a national push towards more integrated care models (perhaps most focused on the development of ACOs), so far results towards safer, more coordinated care have been mixed. Furthermore, care integration issues are compounded for older adults. One study found that the average Medicare beneficiary spent about 17 days in contact with the healthcare system through an average of 3.4 different clinicians. Only 55% of these individuals coordinated their care principally with a single primary care physician.[14]

Structural changes alone will not ensure optimal care integration. Strong clinician leadership and patient engagement will be required to further improve care coordination. Involving patients and families in the codesign of care, especially around coordination and care delivered in the home, will help identify unmet needs and educational deficits.

Care integration remains perhaps the most challenging of the transforming concepts because of the fragmentation of the US healthcare system. When Americans are asked to reflect on the integration of care from their own experiences, some refer to the term ‘healthcare system’ as an oxymoron.[15] Individuals responsible for coordinating care and helping patients navigate the care system include primary care physicians, specialists, nurses, pharmacists, social workers

and care managers as well as health plan and delivery system personnel. As care becomes more complex and shared among more providers, it is essential to improve both processes (eg, teamwork, communication and patient engagement) and technologies (eg, EHRs) for patients and providers.

JOY AND MEANING IN WORK AND WORKFORCE SAFETY

The mission-driven work of healthcare professionals, who serve others during their most vulnerable moments, should rightly bring joy and meaning to the lives of our workforce. *Through the Eyes of the Workforce: Creating Joy, Meaning, and Safer Health Care*[16] looks at how to improve workforce safety and joy in work.

The risk of physical harm to healthcare workers is much higher than for workers in other industries and includes injury resulting from preventable environmental risks such as falls, musculoskeletal injuries, needle sticks and workplace violence.[17] Emotional harm is also pervasive, with regular reports of disrespect, blaming and a punitive environment. Production pressures cause caregiver fatigue, and many are exposed to team-preventive behaviour, such as criticism, bullying and even physical harm. The damaging effects of disrespectful cultures in healthcare[18] and the extent and effects of burnout are being increasingly recognised.[19] However, action to remedy these effects remains slow, and the report made the recommendations outlined in table 3.

Progress

Multiple initiatives are underway to increase awareness of the importance of joy and meaning in work and workforce safety. The National Academy of Medicine and several healthcare professional groups and insurers, such as the American Association of Critical-Care Nurses, the American Nurses Association (ANA Enterprise), the American Medical Association and the Harvard Risk Management Foundation are addressing the issue of resilience and burnout.[20] IHI has developed a framework for increasing joy in work that recommends domains such as reward and recognition, choice and autonomy, camaraderie and teamwork and physical and psychological safety.[21] Some have observed that the widely accepted goals of the Triple Aim[22] should be expanded to include workforce safety and joy and meaning in work—the Quadruple Aim.[23 24]

Regarding healthcare workforce physical safety, noteworthy efforts are proceeding. With the support of the Centers for Medicare & Medicaid Services (CMS), the US Occupational Safety and Health Administration recently launched an initiative to encourage hospitals and healthcare facilities to implement safety and health management systems to prevent injuries among their workforce and patients.[17] Similarly, The Joint Commission has provided detailed reports and tools for improving workforce safety and reducing workplace violence.[25]

Remaining challenges

Despite these efforts, according to one recent study, more than half of US physicians suffer from burnout.[26] Among critical care nurses, 25%–33% have symptoms of severe burnout syndrome.[27] Physicians do have higher rates of burnout than the general public and they also suffer higher rates of depression and suicide.[28] The effects of psychological, emotional and physical harm to the workforce surface in the form of litigation, lost work hours, employee turnover and inability to attract newcomers to caring professions. With healthcare reform, pay-for-performance, the introduction of electronic health records and other innovations, healthcare workers spend less time directly caring for patients—further draining energy, meaning and joy.

Compounding the issue, a recent survey found that only 23% of hospital boards review workplace safety dashboards.[29] Our healthcare workforce is endangered, and without a healthy, engaged and supported workforce, safer patient care will remain elusive.

PATIENT AND FAMILY ENGAGEMENT

Despite evidence that partnering with patients and families yields improved outcomes and patient experience as well as a safer and more productive work

Table 3 Key recommendations from *Through the Eyes of the Workforce: Creating Joy, Meaning, and Safer Health Care*

Target of recommendation	Recommendation
Hospital and healthcare leaders, professionals, board members	Develop and embody shared core values of mutual respect and civility; transparency and truth telling; safety of all workers and patients and alignment and accountability from the boardroom through the front lines.
Hospital and healthcare leaders, professionals, board members	Adopt the explicit aim to eliminate harm to workforce and patients. Recognise and celebrate the work and accomplishments of the work force, regularly and with high visibility.
Hospital and healthcare leaders, board members, managers	Commit to creating a HRO and demonstrate the discipline to achieve highly reliable performance. This will require creating a learning and improvement system and adopting evidence-based management skills for reliability.
Hospital and healthcare leaders	Establish data capture, database and performance metrics for improvement and accountability.
Government and non-profit funders	Support industry-wide research to explore issues and conditions in healthcare that are harming our workforce and patients.

HRO, high-reliability organisation.

Table 4 Key recommendations from *Safety Is Personal: Partnering with Patients and Families for the Safest Care*

Target of recommendation	Recommendation
Leaders of health systems	Establish patient and family engagement as a core value by involving patients and families as equal partners in all organisational activities. Educate and train clinicians and staff to be effective partners and partner with patient advocacy groups and community organisations to increase public awareness and engagement.
Healthcare clinicians and staff	Support patients and families to engage effectively in their own care by providing the information, training and tools they need to manage their health conditions according to their expressed wishes. Engage patients as equal partners in safety improvements and care design. Support patients and families when things go wrong.
Healthcare policy makers	Involve patients in all policy-making committees and programmes. Develop, implement and report safety metrics that foster accountability and transparency. Engage patients in setting and implementing the research agenda.
Patients and families and the public	Ask questions about their care and understand their medicines and care plans. They should also be instructed in basic safety steps: repeating back instructions and information to clinicians in their own words; bringing a friend or family member to all appointments and understanding who is in charge of their care.

environment for healthcare professionals, organisations still struggle with achieving meaningful, lasting patient and family engagement. *Safety Is Personal: Partnering with Patients and Families for the Safest Care*[30] looks at barriers including fragmentation within the healthcare system, the persistence of a paternalistic professional culture, poor process design and infrequent involvement of patients and families in codesign efforts. It notes the lack of training in key communication strategies such as eliciting what matters most to patients for shared decision making, plain language communication and disclosure and apology (table 4).

Progress

With the increasing use of decision aids, patient portals, OpenNotes, care engagement plans and the spread of Patient and Family Advisory Councils (PFACs), healthcare leaders and clinicians are beginning to understand the power of engaging patients and families as integral partners. The OpenNotes programme has demonstrated that patients can contribute to preventing or mitigating errors.[31 32] Patient experience data are being used more widely and effectively. Mandates from CMS, the National Committee for Quality Assurance and other payers for use and improvement of Consumer Assessment of Healthcare Providers and Systems patient experience survey data are linked to improved performance and outcomes. Healthcare systems, hospitals and ambulatory practices are also beginning to incorporate patient preferences into care design by including patients and their families as active participants in codesign and research studies funded by the PCORI. The internationally observed 'What Matters to You? Day' aims to encourage meaningful conversations between patients, families and providers.

Patient and family perspectives are valuable in many arenas, from design of the physical environment and care coordination plans to reporting safety concerns and participation in root cause analyses. Patient engagement should be authentic and take place across the continuum of care from the bedside to the boardroom to national policy committees. The newly established Patient Experience Policy Forum affiliated with the Beryl Institute is advocating for patient and family partnerships in codesign and policy-making nationally.

Remaining challenges

While some exemplary organisations are fully engaging patients in the care process, ample opportunities for improvement remain. Many organisations lack effective PFACs and have not devoted resources to train staff in shared decision-making practices or to offer evidence-based decision aids. The current fee-for-service payment system does not encourage clinicians to spend the time needed to communicate with patients nor to elicit their preferences. Many organisations still lack process improvement skills to support integrating better communication into clinical workflows. As care shifts from inpatient to ambulatory and home care settings, patients and families are becoming more responsible for delivering their own care. However, they may not be well equipped to manage complicated medication regimens, activities of daily living, medical devices or infection control procedures.[33]

Overwhelming evidence indicates that collecting patient feedback and including patients as equal partners in their care support improvement in both patient experience of care and clinical outcomes.[34] Opportunities remain to partner with patients, families and communities to accelerate improvement in education, patient satisfaction and quality of care.

TRANSPARENCY

Shining a Light: Safer Health Care Through Transparency[35] defines four domains of transparency: between clinicians and patients, among clinicians, among healthcare organisations and public reporting. The report holds that transparency is ethically correct and leads to improved outcomes, fewer errors, more satisfied patients and lower costs. The report made recommendations for improving transparency in all four domains (table 5).

Table 5 Key recommendations from *Shining a Light: Safer Health Care Through Transparency*

Target of recommendation	Recommendation
All stakeholders	Ensure disclosure of conflicts of interest and provide patients with reliable information in a form that is useful to them. Create organisational cultures that support transparency, shared learning and core competencies regarding communication with patients and families, other clinicians and the public.
Leaders and boards	Prioritise transparency and safety and frequently review comprehensive safety performance data. Link hiring, firing, promotion and compensation to results in cultural transformation and transparency.
Governmental agencies	Develop data sources for collection of safety data, improve standards and training materials for core competencies and develop an all-payer database and robust medical device registries.
Clinicians	Inform patients of clinician's experience, conflicts of interest and role in care and provide patients with a full description of all the alternatives for tests and treatments and the pros and cons for each. Provide patients with full information about all planned tests and treatments.
Hospitals and health systems	Provide patients with full access to their medical records and include patients and family members in interdisciplinary bedside rounds.
Hospitals and health systems, health professionals	Provide patients and families with full information about any harm resulting from treatment, followed by apology and fair resolution. Provide patients and clinicians support when they are involved in an incident. Include patients/family members in event reporting and in root cause analysis.
Hospital and health leaders	Create a safe, supportive culture for caregivers to be transparent and accountable to each other. Create multidisciplinary processes and forms for reporting, analysing and sharing data. Create processes to hold individuals accountable for risky or disruptive behaviour.
Healthcare organisations, hospital associations, PSOs	Have clear mechanisms for sharing and adopting best practices, for example, by participating in state and regional collaboratives.
Hospitals and healthcare organisations	Report and publicly display measures used to monitor quality and safety and clearly communicate to the public about performance.

PSOs, patient safety organisations.

Progress

Today, the call for greater transparency in healthcare is growing louder. Consumers have begun to post reviews of their physicians, care teams and healthcare organisations on online review platforms. Moreover, some healthcare systems are now collecting and posting information from patient experience surveys at the service or physician level. Recently, several health systems have begun to provide forums for free-response comments online, often with positive results.[36]

The 2005 Patient Safety and Quality Improvement Act and the rise of patient safety organisations have facilitated increased transparency among clinicians and healthcare organisations. Additionally, collaboratives like Solutions for Patient Safety, a network of more than 130 children's hospitals working together to eliminate serious harm, have shown compelling evidence that sharing data, successes and failures can markedly accelerate learning and improvement.[37]

Healthcare is also seeing greater transparency between patients and clinicians in the aftermath of adverse events. A growing number of Communication and Resolution Programmes have been established, fuelled by growing evidence that prompt disclosure, honesty and apology following patient injury can decrease medical malpractice liability and improve the satisfaction of all parties.[38] Toolkits are now available to promote such programmes.[39]

Remaining challenges

Many challenges to achieving full transparency remain.[40] A recent survey found that less than 40% of quality and safety leaders rated their board's understanding of disclosure and apology as 'high', and even fewer felt their boards had a comprehensive understanding of safety concepts related to transparency about error and harm.[29] Transparency within organisations and between providers requires creating an environment of trust as well as improving technology and processes to ensure they are efficient, effective and promote regular open and honest communication and data sharing.

Transparency with the public is equally challenging. Hospital and clinician concerns about litigation; reputational costs and the accuracy, interpretability and comprehensiveness of safety metrics need to be addressed. Additionally, national rating systems and websites, including Leapfrog and *US News & World Report*, share few common scores and often generate more confusion than clarity. For example, as of 2015, no hospital was rated as a high performer by all four major national US rating systems.[41] In the future, data must be understandable and actionable for both patients and provider organisations.

As more organisations publicly share their quality, safety and patient experience data, transparency will be increasingly demanded by all stakeholders. To benefit patients as well as care providers, organisations will need to prepare their boards, clinicians and staff for a more transparent healthcare system. Transparency at these levels will eventually facilitate decision making about where to receive care and where to work, but a long road lies ahead to make this comparable and uniform across all health entities.

NEXT STEPS

Reports about the five transforming concepts provide guidance healthcare organisations need to achieve safe care. While treated separately in the reports, the transforming concepts are interrelated. For example, healthcare professionals experiencing burnout are more prone to commit diagnostic and patient safety errors and less likely to engage patients and colleagues.[42–44]

Medical education reform, joy and meaning in work, care integration and patient and family engagement are also interrelated. For patients with chronic illness, effective intervention often relies on integrated care received across the continuum, where patient engagement is key. Physicians and other providers with training and experience in communication strategies that support teamwork and shared decision making are better prepared to provide coordinated, cross-continuum care for these complex patients.

Each report calls for leadership commitment and recognition of safety as an integral component of operational culture to enable lasting improvement in both patient and workforce safety.

The LLI has already begun to partner with professional organisations to expand and facilitate their safety programmes, focusing on the importance of leadership, effective and engaged boards and a strong safety culture.[45] In addition, plans are underway to improve how organisations measure the safety of their patients and workforce and the reliability of their system. Healthcare needs more and better ways to identify and measure risks and hazards in real time, or proactively, to potentially intervene before an adverse event occurs.

Further research around each of the transforming concepts is warranted. With medical education reform, for example, ACGME has sought to monitor and measure the effectiveness of residency training programmes. For care integration, better research is needed around the effectiveness of new models of care. From confidential sharing of data among organisations to the involvement of patients in root cause analyses, each approach to increased transparency should undergo rigorous research to better understand its benefits and harms. While more leaders, policy makers and regulators are embracing these concepts, much remains to be learnt about how best to engage all leaders, which practices are most effective and how best to implement them.

Finally, while this assessment has focused primarily on the US healthcare system, the LLI looks forward to the opportunity to reflect on the five transforming concepts in systems worldwide, sharing perspectives, best practices and greater opportunity for learning and improvement.

CONCLUSION

The five transforming concepts were meant to highlight important gaps in safety and to serve as new directions to accelerate progress in patient safety. These concepts are overlapping and synergistic, with common themes including the need for leaders who can build a safety culture to create the right environment to advance these concepts, for clear and meaningful measurement, and for research to advance understanding and improvement capability in these areas. It is essential that national professional organisations, foundations and the government support these efforts to change how clinicians are educated, create safe learning environments, integrate care across the continuum, create joy and meaning and safety for the healthcare workforce, engage patients and families at all levels of care and promote transparency. These strategies are as critical now as when first described and are key to advancing the LLI's mission to have a world where patients and those who care for them are free from harm.

Acknowledgements The authors wish to acknowledge Erin Hartman, MS; Joellen Huebner, BA; Patricia McTiernan, MS; Jane Roessner, PhD; and Elma Sanders, PhD, for assistance in drafting and editing portions of the text and Anita Spielman, BA, CPPS, for research assistance.

Funding This study was funded by Medtronic (grant number #6981).

Competing interests None declared.

Patient consent Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

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