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QUALITY IN HEALTH CARE
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Qmentum Quarterly
QUALITY IN HEALTH CARE

Qmentum Quarterly: Quality in Health Care is the product of a partnership between Accreditation Canada and Les éditions du Point.

Accreditation Canada is a not-for-profit independent organization that provides health services organizations with a rigorous and comprehensive accreditation process. We foster ongoing quality improvement based on evidence-based standards and external peer review. Accredited by the International Society for Quality in Health Care, Accreditation Canada has helped organizations strive for excellence for more than 50 years.

Les éditions du Point is a specialized publisher. One of its journals, *Le Point en administration de la santé et des services sociaux*, is intended for health professionals and administrators and has been published for seven years. Les éditions du Point's publications target administrators, managers, and professionals in health care. The publications are intended as tools for information, support, professional development, and continuing education, as well as for reflection, analysis, and expression. While remaining very close to the concerns of the targeted readership, the publications are also guided by national and international thinking.

Qmentum Quarterly

QUALITY IN HEALTH CARE



Qmentum Quarterly: Quality in Health Care is an avenue for sharing expertise, innovation, and leading practices across Canada. The publication provides a forum for health and social services organizations that are committed to learning about and improving quality and patient safety.

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Risk in Health Care

The intricacies of the health care environment and the escalating complexity of diagnostics and treatments make the control and minimization of risk a challenge. All those involved in the provision of health care – from policy makers to direct care providers – must focus on anticipating and minimizing risk, while recognizing that the variables contributing to risk constantly evolve. Adapting to the ever-changing environment and its challenges is essential. While there is an element of risk involved in embracing change, even greater risks exist if organizations stagnate and resist change.

This applies directly to the Accreditation Canada standards. The standards must be regularly reviewed and modified as necessary to reflect current research evidence. If Accreditation Canada did not conduct these updates, over time, gaps would emerge between the evidence and the standards. This would pose a significant risk to health care and to the providers and decision-makers involved in health care. Those engaged in health care provision must have confidence that the standards reflect current practices and provide appropriate direction and support.

As our authors demonstrate in this issue, health care and risk go hand in hand and we must identify and manage them in a responsible and effective manner.

Bryce Taylor describes his work with the "Safe Surgery Saves Lives" checklist, which is helping to decrease the morbidity and mortality associated with surgery.

Vickie Kaminski has an interesting perspective on risk and health care organizations. She recounts how Eastern Health in Newfoundland and Labrador moved through a major crisis with the help of accreditation.

Janet Davidson offers us a look at how nurses in Trillium's Orthopaedic Care Unit revised the model for the transfer of accountability at the bedside.

Annemarie Taylor tells us how the BC Patient Safety & Learning System, an electronic adverse event reporting and management tool, helps health care providers across the province track and trend adverse events.

Polly Stevens of HIROC provides an interesting perspective on how claims data can help a health care provider learn about systemic issues, minimize risk, and improve safety.

Félicia Guarna, Judith Morlese, Victoria Fernandes, and Parthenopi Orfanidis explain how the Salvation Army Catherine Booth Hospital initiated a 'grey zones' project in January 2010. Since then, the acquired infection rate has decreased by an incredible 85 per cent.

Wayne Pedersen tells us how a simple change to visual care plans in a long-term care home had a positive impact on staff, residents, and visitors.

Mary-Lou MacDonald, Jason Slaunwhite, and Leanne McIntyre present us with sobering facts about the safety of health care workers, which merits greater focus in terms of regulation.

James Wright and Randi Zlotnik Shaul discuss how a team at SickKids Hospital created and implemented a process for reviewing innovations in clinical care.

Mathieu Giard points out the risks that are present in the way CPAP devices are sold across Canada, and calls for new regulations to protect patient safety.

As always, we welcome your feedback about this issue, and encourage you to discuss these articles with your colleagues. By speaking up, we share our knowledge and expertise and foster vital discussions about enabling safer health care.

With kind regards,

Wendy Nicklin

BRYCE TAYLOR

Safe Surgery Saves Lives

The surgical checklist involves the verification of factors that have a high likelihood of affecting perioperative outcomes. It came to popular attention after *The New England Journal of Medicine (TNEJM)* published a World Health Organization study (Haynes, 2009) that claimed that postoperative mortality and morbidity could be significantly reduced with the regular use of a surgical safety checklist. With the use of the surgical checklist, perioperative mortality was reduced from 1.5 per cent to 0.8 per cent, and postoperative morbidity from 11 per cent to 7 per cent, both statistically significant.

In this era of patient-centered care, patient safety has become one of the most concerning topics for patients and health care providers alike. However, the paradox of hospital operations in the 21st century is that while physicians understand the need for continuous quality improvement and patient safety, they tend to be highly refractory to changes in their daily practice. The medical establishment applies rigid and long-held principles in its approach to patients and processes despite its focus on knowledge translation as a defining element of modern practice. It is generally held that the time from research to 50 per cent penetration into clinical practice is 17 years (Balas, 2000). Change management is thus highly challenging for individual hospitals as well as policy makers at the national and provincial level.

Implementing care processes in a hospital requires careful planning, dogged determination, attention to detail, and the engagement of staff at every level. When a change is introduced, strategies that support sustainability and shifting

the work culture are critical to long-term success. The dissemination of a *concept* that supports quality improvement typically takes even longer to institute across a health care system or a country than a new process. The adoption of the "Safe Surgery Saves Lives" surgical safety checklist (the surgical checklist) in Canadian hospitals is a good example of the successes and failures that can happen with change management in provincial hospitals and a wider constituency. There is hope that a new multifaceted Canadian approach to the general adoption of this new process will significantly shorten the usual lag time from knowledge translation to clinical action.

> The paradox of hospital operations in the 21st century is that while physicians understand the need for continuous quality improvement and patient safety, they tend to be highly refractory to changes in their daily practice.

The Surgical Checklist

The use of the surgical checklist grew as an extension of the time out process that had been in place for many years, particularly in the orthopedic community. The surgical checklist involves the verification of factors that have a high likelihood of affecting perioperative outcomes. It came to popular attention after *The New England Journal of Medicine (TNEJM)* published a World Health Organization study (Haynes, 2009) that claimed that postoperative mortality and morbidity could be significantly reduced with the regular use of a surgical safety checklist.

The study was conducted in eight international centers and included approximately 8000 operations. With the use of the surgical checklist, perioperative mortality was reduced from 1.5 per cent to 0.8 per cent, and postoperative morbidity from 11 per cent to 7 per cent, both statistically significant.

In the four so-called "higher income hospitals" to which all North American hospitals might be compared,* postoperative morbidity was significantly reduced, although the reduction in mortality in this subgroup did not reach significance. The findings in the WHO publication were duplicated in a subsequent Dutch study (de Vries, 2010).

As one of the participants in the WHO study, the team at the University Health Network in Toronto defined factors we felt were important at the local level for successfully implementing the surgical checklist. These included the preparation and education of all stakeholders; using evidence to engage operating room staff; the development of champions at every level; emphasizing a bottom-up, rather than a top-down approach (e.g., an endorsement rather than a decree from senior management); customization by the eventual users of the surgical checklist for their organization's needs; implementation of the surgical checklist after a practice run, with follow up; monitoring, recording, and publicizing compliance, preferably electronically; recording and publicizing "nice catches" or "near misses" to validate the new process; celebrating and rewarding successes (Taylor, 2009).

The journey from the introduction of this new process to the acceptance of it as a standard operating procedure in the operating room setting was not always smooth, but with time and persistence, it became a meaningful addition to patient safety, staff satisfaction, and mutually supportive staff relationships (Taylor, 2009).

Ontario

In July 2010, Ontario's Ministry of Health declared the implementation of the surgical checklist a *reportable safety indicator*. From that day forward, all of its 155 hospitals were mandated to report quarterly on surgical safety checklist compliance in their operating rooms. This reporting continues, and the verification and auditing of these reports is still being discussed. Self-reporting is considered a first step to ultimately reliable information, and compliance can be recorded in a variety of ways. At the University Health Network, *nine* keystrokes are required to register a positive result for each operation (i.e., confirming the involvement of nursing, anesthesia, and surgery for each of the briefing, time out, and debriefing components). This may appear time consuming, but the involvement of each of the three groups in each process is so important that confirmation of their compliance is essential. This process, along with vigorous management support of truthful reporting by nursing staff, appears to verify the accuracy of compliance in our setting.

British Columbia and Saskatchewan

Although British Columbia has made significant commitments to the patient safety agenda, the consistent use of the surgical checklist has not been confirmed. On the other hand, an auditing requirement was added, resulting in the long-term verification of various safety indicators, which may ultimately prove more reliable than in other jurisdictions (Cochrane, personal communications; Van Dijk, personal communication). The manager of quality improvement and patient safety at Regina Qu'Appelle Health Region in Saskatchewan

* *These are Toronto General Hospital (Toronto, Canada), Auckland City Hospital (Auckland, New Zealand), University of Washington Medical Centre (Seattle, Washington), and St. Mary's Hospital (London, England) (since re-named St. Mary's Hospital-Imperial College National Health Service Trust).*

reports a similar status and direction (Macknak, personal communication).

The CPSI

One critical factor in Canada has been the involvement of the Canadian Patient Safety Institute (CPSI) whose representatives travelled across the country to raise the profile of the surgical checklist, offering help to individual hospitals and professionals via printed toolkits (Safer Healthcare Now, 2011), meetings, conferences, webinars, and seminars. This commitment has now been assumed by *Safer Healthcare Now* (Popescu, 2009) a flagship program of the CPSI; it offers a getting started kit, and is taking a pro-surgical checklist message to clinicians across the country (Fillatre, personal communication; Sorel, personal communication).

An extensive survey of surgical checklist adoption in Canadian hospitals was carried out in the summer of 2010 by Flintoft, Baker, and colleagues. Perhaps not surprisingly, the results varied from full adoption with 100 per cent ongoing compliance, to operating room nurse managers who were actually unfamiliar with the concept (Flintoft, personal communication)!

Accreditation Canada

At the national level, Accreditation Canada has taken the crucial step of recognizing the importance of the surgical checklist in its regular assessments of Canadian hospitals. As of 2011, the surgical safety checklist is now a *required operational practice* (ROP) in the accreditation process and as such, is considered a critical component of the safe and effective management of the surgical patient (Accreditation Canada).

The Royal College

The Royal College of Physicians and Surgeons of Canada (RCPSC) "endorses this important initiative, recognizing that this practical tool contributes to promoting patient safety in our health care system. We are encouraging our members to adopt the Safe Surgery Saves Lives checklist into their everyday practice. It is a tool that promotes communication, one of the critical factors in preventing adverse events" (Brien, personal communication; Francescutti, personal communication).

Conclusion

Attention around the surgical checklist has led to its use in many other intervention areas such as endoscopy, cystoscopy, heart catheterization, interventional radiology, and the medical day unit. The value of this tool in a variety of settings – medical and otherwise – was emphasized in a textbook authored by Atul Gawande, lead investigator of the WHO study published in *TNEJM* (Gawande, 2011).

Although some countries can boast of country-wide compliance after using a classic top-down approach (Breizat, personal communication), such an approach would not be as effective in North America, where we have independent practitioners, and it might even be counterproductive. Not surprisingly, therefore, uptake has been variable across the continent. In fact, evolution of the surgical checklist into a standard procedure in all operating rooms, originally predicted to take a few months after *TNEJM's* publication in January 2009, may well take years.

Still, repeated reminders from Accreditation Canada, new demands from provincial Ministers of Health, probing questions from lawyers at examinations for discovery, and demands expressed by patients themselves will ultimately nurture a culture that will accept progressive change in a more timely and meaningful way. Q

Bryce Taylor, *MD, FRCSC, FACS, has been Associate Chair of the Department of Surgery, University of Toronto, for 16 years, and served as the James Wallace McCutcheon Chair and Surgeon-in-Chief of the University Health Network from 1999 to 2010. He is now Medical Director, International Patients Program, for the Network. He has devoted significant time to the safe surgery checklist as a special advisor to the Canadian Patient Safety Institute. In 2010, he published "Effective Medical Leadership."*

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VICKIE KAMINSKI

Accreditation - A Roadmap to Healing in Newfoundland and Labrador

From 2005-2009, the population of Newfoundland and Labrador had its faith in the health care system badly shaken with every twist and turn of the Cameron Inquiry. When the inquiry concluded, and the ensuing class action lawsuit had been settled, Eastern Health was set to have its accreditation survey. The accreditation process objectively determined which standards Eastern Health met or exceeded and where more work was required. Accreditation gave Eastern Health increased focus, and the Qmentum standards provided a frame of reference for the organization's standing in terms of quality improvement, risk mitigation, and the provision of health care services in Canada. For Eastern Health, beginning the accreditation process by participating in Qmentum couldn't have happened at a better time.

Eastern Health is the largest health authority in Newfoundland and Labrador, comprising acute care facilities, long-term care facilities, community health centers, public health programs, and (until recently) Child, Youth, and Family Services. It was established in 2005 and is one of the largest employers in Newfoundland and Labrador with over 13,000 employees and a budget in excess of one billion dollars. All indicators pointed to a successful merger of the previously independent organizations, which had reputations for providing excellent patient care and enjoyed the public's trust and confidence. In mid-2005, all of that changed.

Going through the accreditation process after a devastating health scandal had positive results.

An error was discovered in the results and reporting for estrogen and progesterone hormone receptor testing (ER/PR), which had an impact on a breast cancer diagnosis. The discovery called into question over 1,000 patients' test results and became the impetus for the Cameron Commission of Inquiry.

The Cameron Commission of Inquiry was established on 3 July 2007 under the Newfoundland and Labrador Public Inquiries Act (2006). The purpose of the Inquiry was to discover why estrogen and progesterone receptor tests done at Eastern Health between 1997 and 2005 had such a high rate of conversion on retesting; to determine why the problems with the conversion rates were not detected until 2005; to ascertain whether testing protocols were reasonable and appropriate for testing done between 1997 and 2005; and finally, to determine whether the regional health authority's response to patients, families, and the public was appropriate, timely, and effective, particularly in terms of communication. The Cameron Commission of Inquiry resulted in 60 recommendations related to practices at Eastern Health and across the province.

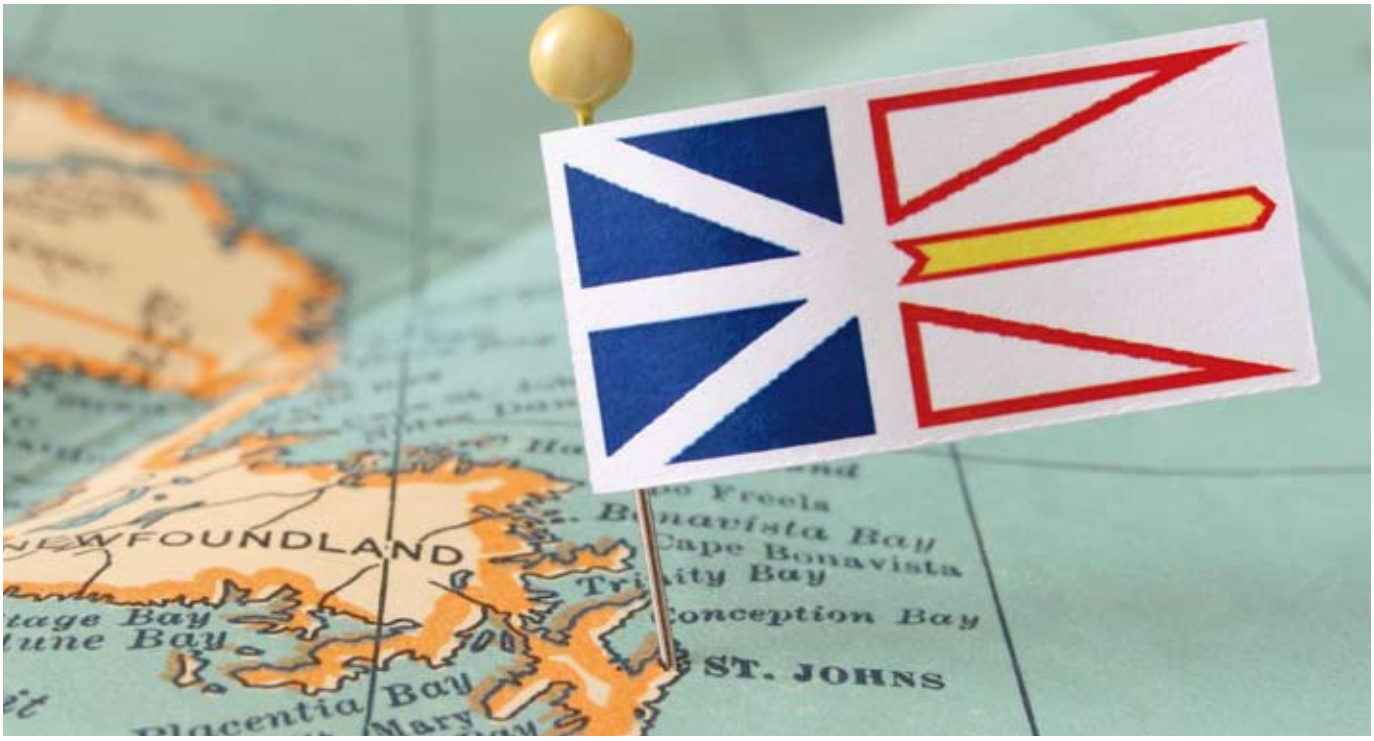
The fallout from the incidents that led to the Inquiry were devastating and life altering for the affected patients and their families. The consequences of the ER/PR testing and the subsequent Inquiry were felt by every employee of Eastern Health.

The impact was tremendous for patients who were notified of the possible error in their diagnosis and results. Retesting began for those who wished to have their results re-examined, and errors began to surface. Some patients had been told they had breast cancer and were treated for it, only to discover they had never had it; others — who believed they had dodged cancer — were finding out they had lived with it for years. Unfortunately, some patients were deceased, possibly as a result of treatment or a lack thereof. The population of Newfoundland and Labrador lost faith in its health care system with every twist and turn of the Cameron Inquiry.

At the same time, leadership changes occurred at Eastern Health. The organization itself was merely months old when the testing issues came to light, and was only two years old when the Inquiry began. The CEO was replaced by an interim CEO, and the Board was called to account for a system in which this type of incident could occur. The Minister of Health and Community Services and the provincial government were under fire in the House of Assembly, and each day brought about more public and media scrutiny.

Two years later, the Cameron Inquiry concluded. More than 60 recommendations were tabled, new leadership was put in place at the health authority, and Eastern Health began its long journey to healing and rebuilding the public's trust and confidence. After such intense scrutiny, a focus on quality improvement and risk mitigation was paramount.

Just after the Cameron Inquiry concluded, a date was set for Eastern Health's 2010 Qmentum survey by Accreditation



Canada. On September 12, 2010 Eastern Health would welcome a team of Accreditation Canada surveyors. Leadership at Eastern Health briefly considered requesting a postponement, but after consulting with select staff members — some of whom were also trained as surveyors — the leadership team decided to go ahead with the September time line.

In retrospect, it was the right decision. The accreditation survey gave Eastern Health increased focus, and the Qmentum standards provided a frame of reference for the organization's standing in terms of quality improvement, risk mitigation, and the provision of health care services in Canada.

What surprised many people at Eastern Health was how the accreditation process helped restore the staff's confidence in the level of care they provided. The "ER/PR scandal," as it became known, had a demoralizing effect on the staff at Eastern Health. People began to speak about working for the previously independent organizations — not Eastern Health — so as to distance themselves from the scandal. Laboratory staff felt particularly aggrieved, as the general public and some of their own colleagues blamed them for "botched test results." The Board was also held accountable for not knowing about or catching the errors, even though this level of technical expertise was not within the scope of its responsibility. The Board, like every health authority board, relied on the policies, processes, and reporting mechanisms within the organization to identify risks, ameliorate them, and report to the Board on these matters.

The accreditation process helped to objectively determine which standards Eastern Health met or exceeded and where more work was required. The fact that the health authority met or exceeded many standard criteria helped its employees begin talking about Eastern Health in a more positive light. We included patients in the clinical accreditation teams, and they saw that Eastern Health was actually doing a good job by Canadian standards; we hoped they would spread the word.

Having spent so much time and effort on every facet of the ER/PR issue, we discovered some areas of the organization that had not been given the attention they required during the scandal.

Medication reconciliation was one of those areas. Some parts of Eastern Health had the appropriate processes well under way, but many had not yet implemented safe medication reconciliation practices. Knowing its importance to patient safety (and having the survey deadline) forced us to move ahead.

Looking at our infection prevention and control measures was also rewarding. As an organization, we had not actually celebrated our low rates of nosocomial infections, or the rarity of most of the superbugs at our sites. Being able to point to this excellent record of risk mitigation was a morale booster for the staff.

Furthermore, the laboratory staff took great pride in being able to document compliance, and in many cases, excellence,

in quality assurance measures in risk mitigation for results reporting.

At the same time, the Board used Accreditation Canada's Governance and Leadership standards to assess its own effectiveness. The Board reaffirmed that all of the processes and policies required for effective governance did in fact exist at Eastern Health. In the face of public criticism, and when self-doubt began to gnaw at some Board members, it was gratifying to have third party validation of the processes the Board used. Accreditation reinforced the fact that meaningful checks and balances existed in the Board's areas of responsibility. It also gave a sense of renewed confidence in the organization as a whole.

September 12, 2010 was the beginning of one week of Accreditation Canada's surveyor visits. Despite major issues — the loss of water pressure at the main acute care site, a major break in the communication cable at the rural site, and high winds and torrential rain as Hurricane Igor approached — our survey was completed and the results were rewarding.

At the all-staff debriefing session, we were told that Eastern Health had met or exceeded 92 per cent of the standards criteria. This was certainly a cause for celebration. Furthermore, we had already begun work on most of the areas the surveyors had identified as requiring further attention. We advised our partners, patients, and the public of the accreditation survey results, and asked them to support us in all of our day-to-day efforts to promote quality improvement.

While risk elimination is simply not possible in health care, risk mitigation is mandatory for Canadian health care organizations that participate in Qmentum. Going through the accreditation process after a devastating health scandal had positive results, including:

- Reinforcing areas in which we already excelled
- Boosting employee morale
- Providing tangible and objective ways to improve public trust and confidence
- Helping to develop the organization's quality improvement roadmap

For Eastern Health, beginning the accreditation process by participating in Qmentum couldn't have happened at a better time. The objective assessment, high performance standards, comprehensive approaches to risk mitigation, and quality improvement initiatives provided this organization with increased focus. For patients who rely on the Canadian health care system, this can be a life saver. Q

Vickie Kaminski *is the President and CEO of Eastern Health. She is a nurse by profession, and has been actively involved in health care institutions for over 35 years, having spent most of that time in Ontario and most recently in Newfoundland and Labrador. Vickie has served on various boards and with volunteer groups and has been an accreditation surveyor with Accreditation Canada for over 15 years. She is an active participant in quality and patient safety initiatives in Newfoundland and Labrador and at a national level.*

JANET M. DAVIDSON

Safer Shift Changes – Better Care, Increased Satisfaction

Trillium's orthopaedic unit implemented a transfer of accountability (TOA) model in which nurses are at the bedside to see patients and complete their safety checks. This process provides significant benefits in terms of patient safety and satisfaction. Trillium's TOA at the bedside is an effective, staff-driven initiative aimed at minimizing risk and enhancing quality and patient safety in the hospital environment.

The Trillium Health Centre's Transfer of Accountability (TOA) process is a nurse-driven, safe patient, hands-off initiative that changed Trillium's process for nursing reports during shift changes — a critical point of care. When Trillium received the decision of Accreditation from Accreditation Canadain June 2010, the surveyors identified the TOA process as a Leading Practice — an exceptional practice that should be used as an example by other organizations.

The results reflected a culture of safety and quality improvement.

History

In the hospital, patient care is transferred from one nurse to another at shift change. At this time, critical information about the patient's care plan, vital signs, clinical condition, and pending diagnostics and treatments is communicated from the outgoing to the incoming nurse(s).

Methods of shift change vary widely across Canada. Often, the transfer of care is done via verbal or taped reporting at the nurses' station. In such a scenario, the TOA occurs without the incoming nurse(s) meeting or observing patients, and without ensuring that patients are safe at the time of transfer.

Prior to October 2007, nurses on the orthopaedic unit at Trillium received a verbal report about their patients at the nursing station. After giving the report, the outgoing nurse would leave for the day and the incoming nurse would see the patients in the order that seemed most appropriate. There was no opportunity for the incoming nurse to clarify information based on direct observation of the patient's condition or environment.

In October of 2007, two events triggered modifications to the TOA process at shift change. Directly after receiving her reports and going to the bedside to check her patients, one incoming nurse found a patient unresponsive in a chair. Another nurse found a patient acutely short of breath. These events were an impetus for the orthopaedic unit to explore other patient hand-off methods.

The orthopaedic unit nurses reflected on their process and discussed patient safety issues related to shift change. They explored improvement options and conducted a literature review on the subject. Research showed that conducting nurse-to-nurse shift reports at the bedside, in the presence of the patient, makes the patient central to all care activity information (Anderson et al., 2006). It also results in increased patient safety, patient and staff satisfaction, and financial savings.

Communication failures account for over 60 per cent of the root causes of sentinel events reported to the Joint Commission on Accreditation of Health Care Organizations (JCAHO, 2011). Because communication errors are a risk factor in patient hand-off, staff looked at communication models used by other performance-critical organizations such as NASA and nuclear power plants. Those organizations use standard templates and checklists when relaying information during transfer points. Memory alone cannot be relied upon to consistently report vital information.

Drawing from these findings, and building on a system of safety checks used at Hamilton Health Sciences (Alvarado et al., 2006), Trillium staff developed the TOA model in October 2007. This comprehensive bedside report model focuses on patient safety, with nurses accepting accountability for their patients at a defined point in time, with full knowledge of what they are accepting, versus accepting accountability in the nursing station without seeing patients firsthand.

In December 2007, the orthopaedic unit implemented the first phase of the model, in which nurses moved to the bedside to see patients and complete their safety checks. In April 2008, the orthopaedic unit presented the TOA model to Trillium's Nursing Advisory Council, which provided consensus to standardize the TOA model across the organization. In December 2008, after intense training on giving shift change reports at the bedside, the nurses implemented the second phase of the new model which included verbal reporting at the bedside, in addition to the bedside safety checks.

The TOA model spread rapidly across Trillium Health Centre and by October 2009 – only 8 months later – every inpatient unit in the hospital had implemented the bedside TOA model.

The Process

In the TOA model, two nurses — one outgoing and one incoming — stand at a patient's bedside. Speaking in gentle, low voices, (in part to help protect patient privacy), the nurses greet the patient, introduce themselves, and ask permission to conduct a verbal report in the patient's presence. Upon receiving consent, they discuss information such as vital signs, clinical condition, abnormal findings, pending diagnostics, medications, treatment, test times, and the care plan. If they do not receive consent, the TOA takes place at the nursing station, but this is extremely rare.

The incoming nurse:

- Obtains full knowledge of the actual status of each patient
- Asks questions
- Clarifies information
- Confirms that the patient is safe at the time of transfer
- Accepts accountability for the patient at a specific point in time

The outgoing nurse:

- Ensures that the information provided is understood by the incoming nurse
- Provides opportunities for patient/family involvement
- Has full knowledge of the patient's condition at the point of TOA
- Says goodbye to the patient

Standardization is the Key to Success

In this TOA model, standardization is extremely important. A comprehensive standardized template is posted at each patient's bedside and prompts nurses to verify information (e.g., that the correct IV solutions are hung). The standardized template serves as a trigger for communication so that vital information passes between nurses. This TOA also includes five checks at the bedside: alarms, armbands, allergies, patent intravenous, and an environmental assessment to identify any potential patient safety risk factors. And as everything happens directly in front of patients, they can ask questions or talk about the care they're receiving.

The Nurse's Perspective

Nurses working in Trillium's orthopaedic unit believe this process provides significant benefits in terms of patient safety and satisfaction. It identifies near misses at shift change and provides an opportunity for patients to clarify information in the presence of the outgoing and incoming nurses.

Trillium's healthy workplace survey and staff survey results for the orthopaedic unit showed marked improvements after the TOA process was implemented. Nurses indicated they are more efficient in the new model as they prioritize their care while getting reports. They are also more confident in caring for patients, and they have more accountability to each other. Their communication with co-workers and their rapport with patients have also improved.

The Patient's Perspective

The TOA model has received positive patient and family feedback, and positive patient satisfaction survey results. Ninety-five percent of survey respondents said they "feel safe" and "know what's going on," and 84 percent indicated they "feel included" and "know who their nurse is." Family members, meanwhile, often plan their visits around shift-changes so they can hear the TOA report; a family member in attendance during the TOA increases the potential for appropriate information-sharing.

A Measureable Improvement

An audit was conducted in September of 2009 to track incidents and near misses identified during the TOA, as well as the number of times information was clarified during bedside reports. The results reflected a culture of safety and quality improvement.

- No incidents were identified
- There were 2 near misses (IV interstitial, and respiratory status)
- Information was clarified in 72 (out of 327) bedside reports

Conclusion

The TOA model is patient-centred, and was initiated by nurses who wanted to ensure the safety of their patients. Nurses worked together to create a standardized method of bedside reporting that improves communication among care

providers; provides structured, interactive, collaborative communication between nurses and their patients; and involves the patients in their own care by sharing timely, accurate information about their care plan, treatment, current condition, and any recent or anticipated changes.

Trillium's TOA at the bedside demonstrates the effectiveness of a staff-driven initiative aimed at minimizing risk and enhancing quality and patient safety in the hospital environment. Q

Please Note: On 1 December 2011, Trillium Health Centre merged with The Credit Valley Hospital. The Credit Valley Hospital and Trillium Health Centre is now one of Ontario's largest community-based academic health networks. For more information, visit www.partneringforpatients.ca.

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ANNEMARIE TAYLOR

Adverse Event Reporting and Learning

In British Columbia, all six health authorities collaborated to establish the BC Patient Safety & Learning System, an electronic adverse event reporting and management tool that is available to providers in all of the province's health care settings. To date, there are over 250,000 event reports in the database, including adverse events, errors involving no harm, near misses, and hazards. The goal in maintaining this database is to provide accessible, meaningful, reliable, and actionable information to leaders across BC for use in their risk reduction and quality improvement efforts. With these tools, leaders can identify systemic or clinic-specific issues, explore them further, and use lessons learned to drive their quality improvement initiatives.

In recent years, implementing a culture of safety has become widely accepted as the most effective means to a safer health care system (Kohn, Corrigan, Donaldson, 2000; Institute of Medicine, 2001; National Steering Committee on Patient Safety, 2002). A culture of safety requires leadership commitment, a non-punitive approach to error management, effective teamwork, and a strong desire to learn from errors (Ruchlin, Dubbs, Callahan, 2004; Canadian Patient Safety Institute, 2010). A safety-related reporting system is also essential, to capture adverse event information for use as the basis for learning and preventive, risk-focused action (Reason, 2000).

A collaborative provincial approach has allowed us to adopt standardized patient safety terminology, reporting, and follow-up processes based on evidence and best practices.

"Some believe that an effective reporting system is the cornerstone of safe practice and…a measure of progress towards achieving safety culture. At a minimum, reporting can help identify hazards and risks, and provide information as to where the system is breaking down. This can help target improvement efforts and systems changes to reduce the likelihood of injury to future patients" (World Alliance for Patient Safety, 2005).

BC Patient Safety & Learning System

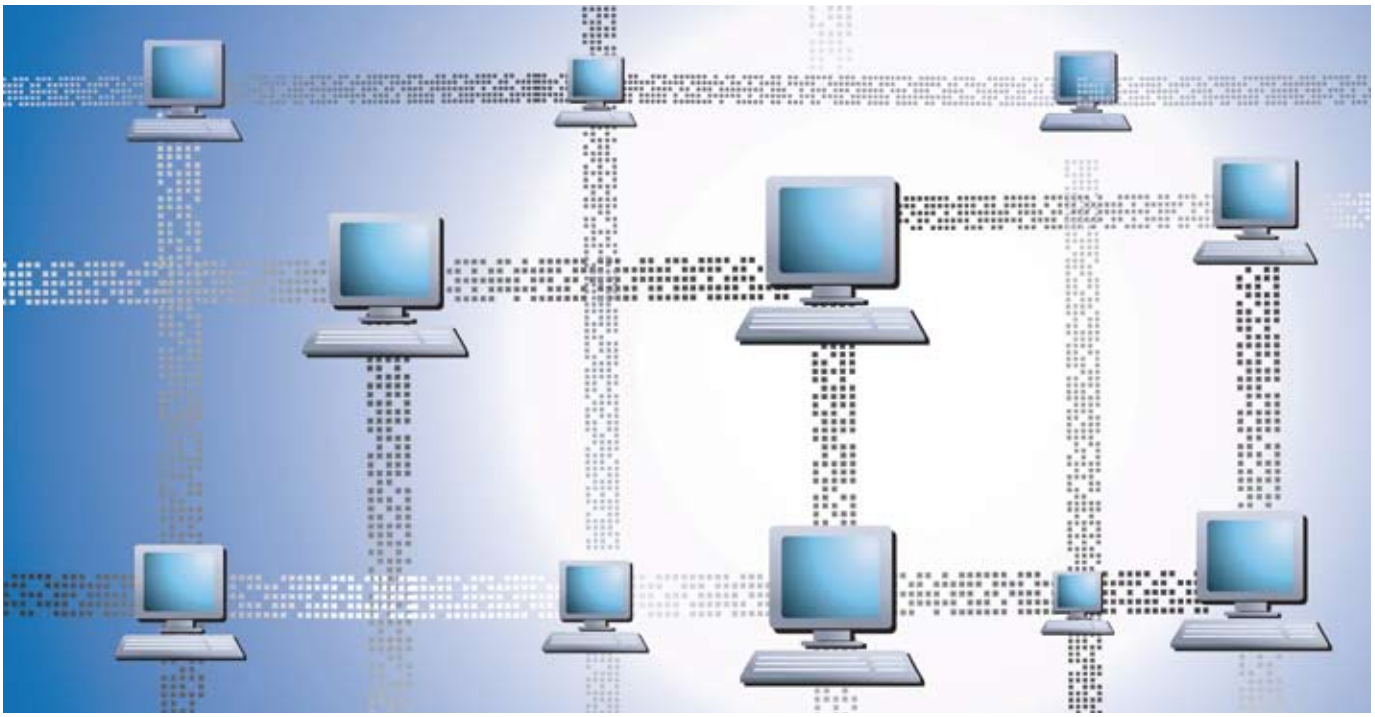
In British Columbia, all six health authorities have collaborated to establish the BC Patient Safety & Learning System (BC PSLS), an electronic adverse event reporting and management tool that is available to providers in all of the province's health care settings. It was launched in early 2008 after several years of preparation and a pilot supported by Canada Health Infoway. Implementation was completed in mid-2011. Approximately 100,000 health care professionals can now report safety concerns and hazards with this tool. Roughly 7,000 of these users are responsible for responding to and following up on safety reports; they are able to login and use the BC PSLS to support their event management work and to extract summary reports. To date, there are over 250,000 event reports in the database, including adverse events, errors involving no harm, near misses, and hazards. The database receives up to 300 reports each day.

Although the BC PSLS relies on information technology, the main focus of the initiative has always been cultural change. The implementation, adoption, and use of the system help health care organizations in BC foster safety cultures that embrace reporting, learning, and taking action to reduce risk.

In addition to helping organizations meet their need for adverse events reporting, the implementation and ongoing application of tools like the BC PSLS can help raise awareness of safety and risk across organizations. They can also support the development of a non-blaming and 'just' culture that values reporting and learning.

The BC PSLS is a rich source of information that offers benefits that would not be easily realized with a paper-based system. For example, automatic email notifications alert leaders to serious incidents in a timely fashion, facilitating the prompt disclosure of adverse events to patients and families, and allowing the necessary supports to be put in place. Communication among members of a health care team involved in follow-up activities is also facilitated by the BC PSLS software, which includes email functions and simultaneous access to an event report across multiple departments.

A collaborative provincial approach has allowed us to adopt standardized patient safety terminology, reporting, and follow-up processes based on evidence and best practices. The follow-up approach we promote encourages providing feedback and sharing findings, trends, and learning to promote communication and trust within and across teams. All of this work aims to strengthen the safety culture and



focus attention – from the bedside to the Board – on safety and risk.

Comprehensive Unit-based Safety Program

Our implementation plan was based on the Comprehensive Unit-based Safety Program (CUSP) developed by Pronovost and colleagues (2004), combined with rigorous project and change management methodology. Our initial focus was on the first three levels of the CUSP framework: assessing safety culture, educating staff about safety, and identifying safety issues. These initial efforts were aimed largely at front-line staff and there was excellent uptake of the reporting tool.

As we rolled out the BC PSLS, we broadened our attention to include the fourth CUSP level: handling safety issues effectively. This component of the implementation was aimed at managers and leaders who respond to event reports. We promoted a systems- and learning-focused approach and emphasized the importance of closing the loop by giving feedback to reporters.

We recently changed our overall approach from implementation to ongoing sustainability and enhancement. Our focus has also shifted to the final CUSP levels: making improvements and sharing stories for the purpose of learning. We recognize that "…reporting in itself does not improve safety. It is the response to reports that leads to change" (World Alliance for Patient Safety, 2005).

We aim to provide accessible, meaningful, reliable, actionable information to leaders across BC for use in their system-wide risk reduction and quality improvement efforts; to this end, we are using and developing a variety of tools that build reports and display data in an accessible and useful manner. With these tools, leaders can identify issues in specific clinical areas, explore them further, and use lessons learned to drive their quality improvement initiatives. Data aggregation can also help identify system-wide issues and risks, which can then be addressed as high-level organizational risks (strategic and operational).

Using a modified version of the World Health Organization's International Classification for Patient Safety (World Health Organization, 2009) helps us focus on event categories that provide the best opportunities for learning, improvement, and risk management. A number of these categories align well with Accreditation Canada's Required Organizational Practices (ROPs). For example, the 'Falls' category consistently has the highest reporting volume BC-wide, representing 33 per cent of patient safety event reports in the database. Working with a provincial falls group, we added specific questions to the report forms (Agency for Healthcare Research and Quality, 2010). These questions help users collect data to evaluate their falls prevention strategies; this information serves as a foundation for improvements.

Events in the 'Medication' category comprise 21 per cent of our reports and touch on all of Accreditation Canada's ROPs identified in the Medication Use and Communication

groupings. By performing targeted searches of our medication event data, we are able to learn more about problems staff are experiencing with high-risk medications and infusion pumps, for example. We can also identify events involving the use of dangerous abbreviations, failure to perform medication reconciliation, or problems with patient identification, so they can be investigated and addressed.

The 'Behaviour' category comprises 11 per cent of our reports and includes acts of aggression toward staff. BC PSLS offers staff a means of quickly reporting issues; the software's automatic email notification function ensures that relevant health care leaders are alerted immediately when a problem is reported. This feature allows them the opportunity to respond quickly to serious events, to provide staff with support, and to take appropriate action to protect all involved. Recently, we developed a report template that enables health authorities to provide data (with patient identification removed) to a provincial violence prevention initiative. This effort is aimed at ensuring a safer workplace, and informing and influencing the approach to workplace violence across the province.

While a reporting system like the BC PSLS is only one component of a comprehensive patient safety and risk management program, it plays a key role in influencing and fostering a culture of safety. This work must begin with a thoughtful approach to implementation, a just approach to error management, and the ongoing commitment of leaders to responsiveness, learning, and quality improvement.

Although reporting systems do not provide a comprehensive view of patient safety or risk issues, they can serve as "tsunami detectors" (D. Cochrane, 2011, personal communication), making growing trends or problems in the system more visible so leaders can promptly investigate and intervene as necessary. Combined with information from other sources (e.g., trigger tools, claims, complaints, coroners' reviews, clinical information systems) and safety practices (e.g., safety huddles, leadership walk-arounds, surgery time-outs), safety event reports allow us to build a safer health care system.

Although the BC PSLS is relatively new, we have learned a great deal about how to collaborate across teams when adopting new technology to support data collection and data analysis for the purpose of quality improvement. We recently launched a website (www.bcpsls.ca) to share our lessons learned with others who are interested in patient safety, especially those in jurisdictions that are establishing similar systems. We also appreciate feedback and suggestions from others who can help us make optimal use of the BC PSLS. Q

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POLLY STEVENS

Claims Can Minimize Risk and Improve Safety

Lawsuits can result in organizational improvements and the minimization of risks, thereby drawing value from an otherwise costly and challenging situation. Claims information is unique and can be useful in highlighting systemic issues; ideally, it should inform risk minimization strategies.

When a health care organization is sued, a great deal of information is generated, including written and verbal examinations of the key participants, legal opinions on the merits of the case and potential damages, and detailed expert reports about aspects of care.

This type of information can help organizations discern not only what happened, but also what might go wrong in the future, how often it might go wrong (frequency), the magnitude of losses (severity), and whether there is a need for mitigating action (NPSA, 2008). Claims can therefore result in a valuable perspective on organizational risks. Ideally, they should be used to inform strategies for risk minimization.

Claims often create a sense of urgency, which can help to facilitate system changes.

Using Claims Data

Claims data can be used for reviewing individual cases, reviewing cases over time in the same organization, or reviewing aggregate information from multiple organizations. Research into highly reliable organizations (HROs) shows that they are "preoccupied with failure" and treat all incidents as symptoms of problems within the system (Weick, 2007). In HROs, claims would be reviewed to identify systems concerns.

Medical legal claims can be used to identify important and actionable deficiencies in health care processes that are not generally captured by other data sources (Levtzion-Korach, 2010). Claims files provide information that can be used to qualitatively analyze adverse events, and are also particularly useful for identifying latent and systemic issues (Vincent, 2006; Thomas, 2003).

Unlike internally-led investigations of patient safety events, investigations of medical legal claims are carried out by trained adjusters and, depending on the nature of the case, by legal counsel and relevant experts. They investigate whether the care provided met a reasonable standard (i.e., what most other providers would do in a similar set of circumstances). Issues related to causality are also central to the review (i.e., whether the breach in the standard of care led to the damages). Investigations may determine that care did not meet an appropriate standard, resulted in damages to a patient, and that compensation is warranted. An investigation may also reveal that nothing could have been done to alter the course of events.

Concerns regarding systemic issues and deficiencies are identified and then communicated to organizations, and particular attention is paid to items that have a high potential for recurrence. Claims often create a sense of urgency, which can help to facilitate system changes (Kotter, 1996) (e.g., better vital sign monitoring and documentation, improved protocols for communicating critical test results, and refining triage and documentation practices in the emergency department).

At the heart of all claims (whether meritorious or not) is a patient and/or family for whom care expectations were not met. Research has shown that in the aftermath of an adverse event, patients want information about what happened, why it happened, how the consequences will be mitigated, and how recurrences will be prevented (Gallagher, 2003).

Learning From Claims Data

The greatest potential for learning from claims data is realized when data is pooled across multiple similar organizations. Sharing lessons learned and pooling claims data are inherent features of insurance reciprocals and cooperatives, as is the collective pressure exerted by members to implement effective risk management programs that reduce injury (Prichard, 1990). Analysis of aggregated claims data in anaesthesia, for example, led to the creation of professional standards requiring pulse oximetry and end-tidal carbon dioxide in the OR, which dramatically decreased the risks associated with anaesthesia (Vincent, 2006). In Canada, concerns about the high risks and claims costs associated with obstetric care led to the development of the "Managing Obstetrical Risk Efficiently" (MOREOB) program which has been shown to reduce the risk of infant and maternal morbidity (Thanh, 2010).

Aggregate claims data enables organizations to benchmark their claims performance. Key measures (e.g., average cost per claim and/or the per cent of total claims costs for different risk categories) can be compared with those in an organization's

peer group. The average cost per delivery or emergency department visit or hospital discharge could also be reviewed. This data has been used to validate good risk management practices in the past, and to highlight the need for further development in certain areas.

Top 10 Risks

At the Healthcare Insurance Reciprocal of Canada — the largest such body in the country — work to translate claims data (including professional liability, bodily injury, and property claims) into information that can be used for risk management and quality improvement is ongoing. Lessons learned from claims are consolidated into a self-assessment program, which is recognized by Accreditation Canada as a means of ensuring an integrated approach to risk management across an organization (Accreditation Canada, 2010).

In an effort to help organizations focus on the most important risks, a ranked list was derived from the HIROC claims database, using total claims costs as a proxy for severity. The top ten risks are listed in Table 1 and include issues that do not typically arise from other sources of safety data; this includes obstetrical risks (due to the elevated lifetime costs associated with caring for an unwell infant), the significant losses associated with visitor falls, and high costs associated with water damage in health care facilities.

Table 1. Top 10 Risks at Acute Care Hospitals

Rank	General Category	Specific Risk
1	Obstetrics	Failure to interpret/respond to abnormal fetal health status
2	Diagnostics	Misinterpretation of laboratory results
3	Medical	Inadequate triage assessment and documentation
4	Obstetrics	Mismanagement of induction/ augmentation medications
5	Diagnostics	Failure to communicate critical test results
6	Obstetrics	Failure to monitor fetal status
7	Falls	Visitor falls
8	Obstetrics	Failure to communicate fetal status
9	Property	Water damage
10	Medical and Surgical	Failure to appreciate status change/deteriorating condition

To further disseminate the lessons learned from claims across the reciprocal, key findings and mitigation strategies derived from claims files and the literature were developed for the top 30 risks. These mitigation strategies will be collated into a more focused and efficient self-assessment program in the near future.

Limitations of Claims Data

There is no perfect way to estimate the incidence or severity of adverse events (Vincent, 2006). Varied sources can inform estimates, including incident reports, chart audits, leadership walk-arounds, and medical legal claims reviews. Each source provides a different view of the overall risks, and they all have inherent strengths and weaknesses (Levtzion-Korach, 2010).

The limitations of using claims data are well established, particularly in the context of a single organization where claims are, hopefully, infrequent events. These limitations include: low frequency and selection bias (they do not provide a representative picture of the entire population of adverse events); hindsight bias (which is the case for retrospective investigations); and non-standardized data (which makes coding and analysis difficult) (Vincent, 2006; Thomas, 2003).

Another factor which comes into play when discussing the role of claims in improvement is that human beings make errors in judgment when assessing risk. The most important of these in the context of claims is the "availability" heuristic. This refers to the fallibility of one's memory retrieval mechanisms, which contribute to predictions of the likelihood of risks based on events that are easily called to mind (Crosby, 2011). Being sued is an impactful experience, and when a leader thinks about the most important risks facing an organization, they may naturally recall the circumstances that gave rise to a recent lawsuit while there may be other, more serious or more frequent risks that require attention. Conversely, if one hasn't been sued in a particular area, one may underestimate the likelihood of that risk.

Conclusion

Claims information is unique and can be useful in highlighting systemic issues. Being sued should result in the identification and implementation of risk minimization strategies and organizational improvements. A difficult turn of events can have a positive impact on your organization and may lead to changes that will help minimize risks and improve care in the future. Q

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FÉLICIA GUARNA


JUDITH MORLESE


VICTORIA FERNANDES

Clarifying and Cleaning Grey Zones

PARTHENOPI ORFANIDIS

It is difficult, to designate responsibility for cleaning and disinfecting "grey zones" — areas where it is difficult to attribute responsibility for cleaning. The Salvation Army Catherine Booth Hospital initiated a grey zones project in January 2010. Since then, the acquired infection rate has decreased by 85 per cent.

Contamination of the clinical environment is of great concern to every health care organization. Surfaces that are improperly cleaned are reservoirs of pathogenic agents capable of causing lethal harm to patients, visitors, and staff. Lesser acknowledged, but also important, is the fact that the transmission of such pathogens also decreases patients' morale and their trust in the health care system.

In 2003-2004, there were 1,270 deaths in Quebec that resulted from hospital-acquired C.difficile, a well-known pathogen (Eggertson, 2004). In 2006, Quebec's Ministry of Health and Social Services developed guidelines for hygiene, aimed at maintaining a clean environment in health care service providers, and thereby limiting the transmission of pathogenic agents. The Ministry stressed the importance of conferring responsibility for the management of environmental risks to someone within the organization. For example, housekeeping staff must be clearly designated as responsible for cleaning and disinfecting the walls, floors, and furniture.

The acquired infection rate has decreased by 85 per cent.

It is difficult, however, to designate responsibility for cleaning and disinfecting medical equipment and clinical materials used by numerous service providers. These surfaces are termed "grey zones" — areas where it is difficult to attribute responsibility for cleaning.

A lack of attention to grey zones can have dire results. For example, a coroner's inquest in Montreal, Quebec, revealed serious problems related to infection prevention and control. Particular mention was made of improperly disinfected bed pans and other clinical materials, which resulted in serious harm to patients. This was highly alarming to the Montreal Health and Social Services Agency (MHSSA) and prompted the organization to prioritize the elimination of hospital-acquired illnesses resulting from grey zones from all of its providers. In 2011-2012, all MHSSA organizations must complete work on grey zones in at least 50 per cent of their nursing and critical care units.

The work consists of listing all equipment and materials used during patient care, as well as the surfaces with which patients may have contact. The department responsible for their cleaning must be determined and a verification checklist must be in place indicating whether the equipment or surface was cleaned, and the date on which verification was carried out. A proposition was made to have this requirement included in all MHSSA management agreements in the near future.

The Grey Zones Project

The Salvation Army Catherine Booth Hospital tackled the complex issue of grey zones by initiating a project that achieved outstanding results. At the 84-bed, short-term, rehabilitation hospital, the Grey Zones Project was created and implemented by the Technical Services team in January 2010. Since then, the acquired infection rate has decreased by 85 per cent.

Table 1. Nosocomial Infection Rates

Infection Control – All Programs	TOTAL 2007-2008	TOTAL 2008-2009	TOTAL 2009-2010	TOTAL 2010-2011	TOTAL 2011-2012
VRE from CBH	3	12	18	60	1
VRE from referring hospital					52
MRSA positive patients from CBH	56	62	54	54	2
MRSA positive patients from ref. hosp.					32
C. difficile positive patients from CBH	13	8	7	49	18
C. difficile positive patients from ref. hosp.					22

As this project was complex, it was not the task of Technical Services alone; it required feedback and participation from various departments. It began with the Director of Technical Services forming a committee including a representative from each department in the hospital. Committee members were tasked with documenting every item in their own department. This data was returned to Technical Services, whose staff members then went room-by-room, to verify that no items were missing from the compiled list. The Director of Technical Services contacted nearby hospitals to ask whether items on the list were cleaned by the housekeeping staff or by the users. The Director also contacted the Quebec Association of Health and Social Services Establishments to be certain their guidelines were also being followed.

Table 2. Equipment Disinfection Schedule for Administration Offices

Equipment	Frequency of Disinfection	Professional Responsible	How to Disinfect	High Touch	Low Touch	No Touch
Filing cabinets/exterior	Weekly	Housekeeping	Acc. Std.			x
Supply cupboard	As needed	User	Wipes			x
Photocopier	As needed	User	Wipes		x	
Control panel	As needed	User	Wipes		x	
Paper tray handles	As needed	User	Wipes		x	
Employees' mail trays	Upon request	Housekeeping	Acc. Std.		x	
Book shelves	Upon request	Housekeeping	Acc. Std.			x
Air conditioner unit	Upon request	Housekeeping	Acc. Std.			x
Telephone unit	As needed	User	Wipes		x	
Receiver	As needed	User	Wipes	x		
Calculator	As needed	User	Wipes		x	
Computer	As needed	User	Wipes			x
Screen	As needed	User	Duster			x
Hard drive	As needed	User	Computer wipes			x
Keyboard	Between Users	User	Computer wipes	x		
Printer	As needed	User	Wipes		x	
Tray handles	As needed	User	Wipes		x	
Kettle	As needed	User	Acc. Std.			x
Coffee machine	As needed	User	Acc. Std.			x
Fans	1x year	User	Wipes			x
Plants	As needed	User	Acc. Std.			x
Instructions:	**Procedure:**	**Cleaner:**	**Observations:**			
Wipe contact surfaces with appropriate disinfectant after soilage has been removed via cleaning.	First wipe removes dust or overall dirt buildup.	PDI Sani-Cloth Plus				

Acc. Std.: According to standard
High Touch: A surface potentially in contact with patients; includes surfaces contaminated by blood and/or other liquid.
Low Touch: Surface area or material with low patient contact; however, over a period of time it may become contaminated (e.g., wheels on patients' beds).
No Touch: Surfaces or materials that only need periodic cleaning (e.g., fan in radiology)

This work led to the development of the *Grey Zones Manual*, which identified grey zones, the person responsible for their cleaning, the appropriate cleaning product(s), the proper cleaning procedures, and the recommended frequency of cleaning and disinfection. Health care providers and housekeeping staff at the Catherine Booth Hospital are now held accountable based on the directions in the *Grey Zones Manual*.

The manual also designates surfaces as high, low, or no touch. High touch surfaces are those patients are likely to have contact with, including surfaces susceptible to contamination by blood or other biological fluids. Low touch surfaces are less likely to be touched by patients, but contamination can still occur as the result of long-term accumulation. No touch surfaces require only periodic cleaning (e.g., ceilings or the ceiling rail for the Hoyer lift).

The *Grey Zones Manual* was distributed to all relevant departments. In order to be assured of the proper cleaning and disinfection of all equipment, item-specific cleaning protocols were also developed. Quality assurance activities are now in place, and include visual scans. If deficiencies are observed during the visual scan rounds, they are noted and corrective measures are implemented, including follow-up activities.

There were also significant efforts to inform and train the staff responsible for cleaning and disinfecting the equipment. Furthermore, in order to ensure the success of the initiative, a full-time housekeeping position was created. This position is responsible for cleaning high touch surfaces, thereby improving cleanliness in the patient care units and public areas.

The implementation of cleaning protocols related to grey zones has increased collaboration between the housekeeping, nursing, and rehabilitation departments, and the infection prevention and control nurse. Staff members are more committed to cleaning grey zones after witnessing how this project reduced the number of hospital-acquired illnesses.

> In essence, it was a very complex project, but with the dedication and collaboration of all departments, we were able to successfully complete this project and resolve the grey zone areas. For me personally, it is both rewarding and comforting to know that we have improved our patients' quality of life by creating a clean and safe environment.
> *~ Victoria Fernandes, Director of Technical Services*

Cost Benefits

The financial consequences of failing to invest in a clean and safe hospital should also considered. It has been estimated that 220,000 hospital-acquired infections are responsible for approximately 8,000 deaths each year in Canadian hospitals. This classifies hospital-acquired infections as the fourth

leading cause of death in Canada. However, 30 to 50 per cent of these infections could be prevented by implementing the proper infection prevention and control infrastructure (Zoutman, 2003).

Not surprisingly, costs increase when patients acquire additional illnesses during their hospital stay. For example, patients who acquire MRSA while in hospital have increased costs resulting from a prolonged hospitalization, the implementation of isolation precautions, the utilization of numerous costly therapeutic agents, and an increase in the number of laboratory tests required during treatment. Studies have shown that hospital costs related to MRSA range from $8,000 to $34,000 per infection (Edris, 2008).

Conclusion

In order to eradicate the pathogens responsible for potentially devastating events, administrators must be ready to invest in the proper cleaning of all hospital spaces and equipment. The solution lies in the meticulous cleaning of all equipment, and clearly designating responsibility for this work.

The Catherine Booth Hospital was quite avant-garde in developing the *Grey Zones Manual* and creating new equipment cleaning protocols. Staff members were convinced this project was a step in the right direction for infection prevention. Grey zones are no longer the problem they once were as the manual explicitly states who is responsible for cleaning and disinfecting equipment in all areas Q

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Parthenopi Orfanidis *began her career on an internal medicine unit where she worked as a nurse for five years. During that time, she completed a BScN at the University of Ottawa and graduated with honors. She then worked in infection control at the Catherine Booth Hospital until 2011, while completing a certificate through Queens University. Her curiosity, determination, and enthusiasm for learning drives her to strive for excellence in her current position at the McGill University Healthcare Center, as an Infection Control Consultant.*

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WAYNE PEDERSEN

Visual Care Plans — A Successful Innovation

In order to quickly identify each resident's care needs, we created a visual care plan — something all staff and volunteers could use to help them provide appropriate care to residents. The visual care plans are now a quick reminder of important safety information tailored to each resident. These visual care plans have also helped health care aids in the dementia care unit provide more appropriate and safer care.

Operating a long-term care home has many challenges, including caring for aging and ailing residents; recruiting, training, and retaining staff; working with families; and complying with ministry legislation. Mixed with this are the ongoing challenges and opportunities of improving our home.

One such opportunity presented itself when Sandy Garland, a Health Care Aide (HCA), approached me with a small photo frame in which she wanted to place residents' photos. At the time, we had decorative wall hangings outside each resident's room with a space for their photo and name. These photos helped residents, staff, and family members find the proper room. Unfortunately, some residents were pulling the wall hangings down, taking the drywall paper with it. Sandy suggested we place the photos in a more durable frame instead. We wanted to capitalize on this excellent idea by fixing a few other problems at the same time.

One of the difficulties we faced was how to quickly identify residents' care needs. We have logos on each of the residents' overhead lights so staff can easily identify how a resident is to be transferred (e.g., whether they need a sit-to-stand lift or help from several people). These cards were helpful,but they were not always kept up-to-date and were not particularly noticeable. Furthermore, they did not always match the residents' kardex (the card at the nursing desks that contains a resident's personal care information).

To address multiple challenges at once, I decided to increase the size of the frame and incorporate the transfer logos. After talking with the staff, we opted to create a visual care plan — something all of the staff and volunteers could use to help them provide appropriate care to residents.

With some help from a local frame maker, a prototype was created. It stays on the wall, yet allows us to easily change the paper for the visual care plans.

A good idea is hard to contain and staff provided suggestions about several other high-risk items that could be added to the new model.

The visual care plans are now a quick reminder of important safety information tailored to each resident. New staff members are encouraged to carry quick reference cards that describe the logos in case they are not sure what one means.

The Trial

There were some initial concerns that the visual care plans might impact residents' privacy and add to staff workloads. A trial was therefore conducted in our dementia care unit, to measure the impact of the new aide.

I personally contacted the eleven families whose loved ones lived in the dementia care unit and explained the new idea — all were in favour of the trial and signed consent agreements. The idea was also brought to family and resident councils and everyone was in favour of the suggested change.

The trial lasted three months and there were no privacy-related issues. The HCAs working in the dementia care unit were unanimous in their determination that the visual care plans helped them provide more appropriate and safer care. Residents and family members also found the new reminders useful. Using logos also addressed language barriers for staff members whose first language is not English, which they very much appreciated.

The visual care plans are now a quick reminder of important safety information tailored to each resident.

Dissemination

Visual care plans were then installed in the remaining three wings, with consent from all residents and relevant family members. The project became a standing agenda item at the HCA, family council, and resident council meetings. The sentiment at the HCA meetings was favourable, especially among the casual HCAs who had previously had a hard time memorizing the different residents' needs.

It has also been handy for me as the facility's Administrator, particularly during rounds. It allows me to offer residents assistance with the confidence that I am doing so correctly, and without having to memorize 46 kardexs. Furthermore, I know that I am setting a good example for my staff; I hold them accountable for using the proper care procedures, and I need to abide by the same procedures to ensure our residents' safety. This tool helps health care providers from all disciplines — not just the HCAs — work with a common understanding of what each resident needs.

Initially, the only problem we encountered around dissemination was that the visual care plans were not being updated to match the residents' kardexs. This meant that HCAs might receive mixed information about a resident's care.

To address this, we developed a policy with the help of the Southern Alberta Long Term Care Consultant — all nursing staff must review the kardexs daily. Now, if anyone notices a difference between a kardex and a visual care plan, they must report it to the charge nurse, who decides which is correct; the unit clerk then updates them as required. The policy also requires nursing staff to report changes in residents' status to the charge nurse on a daily basis. This policy is communicated to new staff and again on an annual basis. The result is a very smooth and up-to-date system that gives the HCAs the latest information on every resident.

The visual care plans meet Accreditation Canada's standards as a unique identifier. They help everyone remember who is in each room, and what type of care they require.

Visual Care Plans

Our team chose to include the following fields on the visual care plans:

Transfers and Mobility: Includes supervised ambulation, use of a walker, wheel chair, transfer belt, sit-to-stand lift, full mechanical lift, or ceiling lift.

Dietary Requirements: May include directions regarding minced, pureed, or diabetic food, allergies, and thickened fluids.

Goals of Care: If a resident has chosen resuscitation as a goal of care, their name will be printed in green (green for GO!); if they chose "do not resuscitate," their name will be printed in red (red for STOP!). We have also included the Calgary Zone Alberta Health Services Goals of Care R1, R2, and R3 logos to better communicate clients' wishes/needs (R1 means full CPR with chest compressions; R2 and R3 mean artificial resuscitation only).

Safety Alerts and Risk Reminders: We use a picture of a falling leaf to indicate a resident who is at high risk for falls; multiple leaves indicate a very high risk for falls. Aggressive residents receive a purple star logo, and other logos indicate bed alarms, seatbelt alarms, and chair alarms. We also have a logo for residents who should be turned every two hours.

Recreation and Likes: Since we began using visual care plans, we've added some logos to indicate recreation and leisure preferences (e.g., gardening, playing piano, fishing, or Lions Club membership). This helps our staff members connect meaningfully with each resident, on a personal level.

A quick look at Eva's visual care plan tells you that she requires a sit-to-stand lift, uses a wheel chair, is on a minced diet, has food allergies, takes thickened fluids, is at high risk for falls, does not require CPR, and enjoys knitting, gardening, and playing cards.

Our residents' safety and care is our primary focus, so quality improvement measures that help us in this effort are worth the time we invest.

Staff members want to do their jobs confidently, knowing that they are providing proper care; the visual care plans help them achieve this goal.

"I only work in this home once every few weeks. I know the residents, but cannot always remember what they need. When I'm helping a man go to the washroom, it is very good for me to be able to quickly see if I need someone else to help get him there. It means he gets faster and safer care." ~ Casual HCA

"I like to do whatever I can to help the residents, but sometimes I worry that my help will do more harm than good. The visual care plans let me know what I can do for each of the residents." ~ Volunteer

"I am glad my safety is taken so seriously." ~Resident Council President Q

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MARY-LOU MACDONALD

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Beyond the Status Quo — Managing Risk through Occupational Health & Safety

At the beginning of this millennium, the Institute of Medicine (IOM) concluded that health care organizations must develop a culture of safety, that the "status quo was no longer acceptable," and that a "comprehensive approach was needed to improve patient safety" (IOM, 2000). This message resonated with health care leaders across Canada and internationally, and significant strides have been made to improve patient safety-related processes (e.g., near miss reporting, root cause analyses).

The Canadian Patient Safety Institute is a relatively new organization in comparison with occupational health and safety (OH&S) legislation, yet in a reasonably short timeframe, it established a national patient safety strategy with infrastructure, targeted funding, and shared initiatives and outcomes. A significant amount of attention has been paid to the patient safety agenda in recent years; in fact, it dominates much of the discussion around safety in the health care system.

The challenge however, is that building a national safety culture in health care must encompass both the worker and the patient, given that the safety of the former is a prerequisite for the safety of the latter (Yassi and Hancock, 2005). This fact cannot be underestimated and requires a renewed focus.

Considering this reality, we need to ask ourselves several important questions: With such a prominent patient safety agenda, how do we ensure that discussions about a culture of safety include the safety of health care workers? What can we learn from the patient safety agenda that can be applied to contribute to a safer environment for health care workers, to prevent or minimize injury and illness within the health care workforce?

The Cost of Injury

It might be tempting to assume that health care is not a dangerous sector; however, evidence indicates that the average number of days lost to illness or injury in health care is 1.5 times higher than in any other occupation in Canada (CIHI, 2005). The risks associated with health care delivery are many, and include patient handling/repositioning, exposure to blood borne pathogens, and acute episodes of workplace violence. It is worth noting that workplace violence has emerged as a national priority in the health care sector. Accreditation Canada has responded to this issue with the introduction of a Required Organizational Practice (ROP) and strengthened standards specifically targeting workplace violence prevention.

It is also important to note that the majority of injuries (and associated costs) in health care result from musculoskeletal injuries (MSIs) (Yassi, Gilbert, & Cvitkovich, 2005). To prevent those providing health care from becoming patients as a result of their job responsibilities, the next step should be to introduce codes of practice or programs to guide workplace standards for injury prevention in health care. This can be enabled by sharing our collective OH&S knowledge to reduce the number of health care workers injured each day in Canada.

To begin mitigating the risk of MSIs acquired in the workplace, Nova Scotia's health care leaders recently supported a provincial collaboration in partnership with AWARE-NS, the Nova Scotia Health and Community Services Safety Association, and the Workers Compensation Board of Nova Scotia. They are collaborating to support an MSI prevention/management strategy. This reflects the significance of the issue and the level of commitment required to truly effect sustainable change.

Creating a consistent national standard for the prevention of MSIs would make a major contribution to the quality of the health care environment and the prevention of costly and unnecessary injuries. It is reasonable to expect that this would also reduce the risk of injury to patients, clients, and residents during lifts, transfers, and mobility assistance. A number of published commentaries support the fact that negative worker–related outcomes also impact patient safety outcomes negatively (Yassi & Hancock 2005, Sikorski, 2009).

Figure 1. Injury impact across health care in Nova Scotia 2010

Source: Workers' Compensation Board, 2011

Toward a National Strategy

Many health care organizations across Canada are committed to the creation of healthy and safe workplaces that support quality patient care. The province of Nova Scotia has been a leader in the concept of linking quality patient outcomes with quality workplaces. In 2008, CEOs from each of the nine district health authorities and the IWK Health Centre signed the leadership charter promoted by the national collaborative, Quality Worklife Quality Healthcare (QWQHC).

This was an important first step, yet efforts should not end here. The next challenge is the creation of a national system that supports accountability for the safety of patients and employees.

There are opportunities to find shared OH&S solutions in health care across the country. For example, AWARE-NS has identified the following OH&S issues as top priorities: (1) Compliance with OH&S legislation; (2) Musculoskeletal Injury Prevention (MSI); and (3) Workplace Violence Prevention. These are common OH&S priorities across Canada. The Public Services Health and Safety Association (PSHSA) in Ontario, the Saskatchewan Association for Safe Workplaces in Health (SASWH), and AWARE-NS have begun to work closely to share resources and expertise to extend a web of support across the country. We fully recognize the value of this collaborative approach and plan to continue to work together to find shared solutions to these priority issues.

Significant sustainable change is needed, and based on the escalating costs associated with workforce injury and illness, change needs to happen now!

Sector-specific Data

Historically, health care has been composed of a predominately female workforce. The risks associated with the work were not recognized for their true potential to be severe or fatal. When we review the volume of injuries – the number of workers injured and the impact of injury on their lives – the situation is tragic. In Nova Scotia, between 2001-2010, Workers' Compensation Board (WCB) premiums rose by 134 per cent even though the health care payroll was only up by 63 per cent. In 2007, 45 million dollars was paid in WCB premiums, – a figure that rose to over 57 million dollars in 2010. Health care accounts for over 20 per cent of all lost time claims in Nova Scotia.

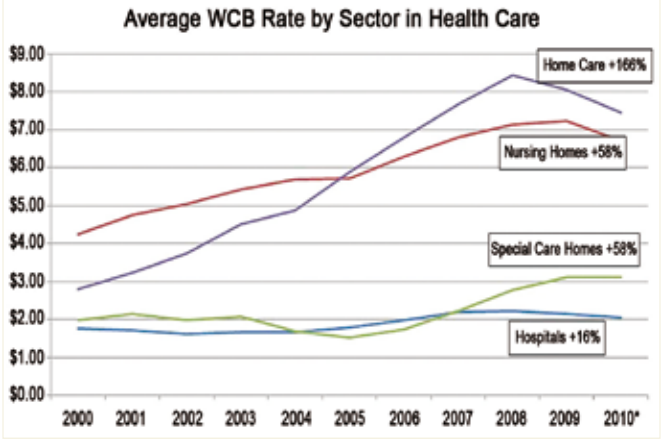
When employee safety in the health care industry is compared with other industries such as construction, there are some very noticeable differences. Last year in Nova Scotia, there were twice as many time loss injuries in health and social services as in construction. Between 2001 and 2010, the construction industry had a rate decrease of 22 per cent, while health and social services experienced a rate increase of 43 per cent. Although the 2011 and 2012 rates show some positive changes in the health care sector, we know that there is tremendous room for improvement.

For example, although there are certainly exceptions, home care/home support and long-term care continue to struggle with rate increases outpacing other sectors in health care. With a trend toward home care service delivery, we expect to see increased risk and injury associated with this workforce by continuing on the same course.

The provincial WCB rate in Nova Scotia is $2.65 per $100 of assessable payroll, but in 2011, rates for home care organizations were $7.87 per $100 of assessable payroll. These numbers suggest that fewer financial resources will be available to establish and/or sustain an effective injury prevention system. That is a risky proposition.

Evidence shows that having sector-specific safety associations can help reduce injury rates, yet there are only a few provinces with a dedicated health care safety association, such as the one in Nova Scotia. A visit to the Canadian Federation of Construction Safety Associations (CFCSA) website shows representation from 13 construction safety associations across this country; construction industry leaders surely have lessons to share with health care leaders.

Health care leaders have an opportunity to learn from the experiences of other industries that have developed safe work practices and consistent standards for training, which have improved OH&S outcomes.



Source: Workers' Compensation Board, 2011

There are some important questions to ask when creating a safety culture within an organization. For example, is there a belief at any level of the organization that hazards such as MSIs and workplace violence are simply part of the job? Is there support for an approach where health care workers' safety is valued and that care and service can be delivered within a quality work environment that is safe? Is worker safety and well-being equally important to that of the patient/client/resident?

We must also ask whether the Internal Responsibility System (IRS) is applied to health care with the same consistency as other industries. The IRS is an essential safety principle that requires employers and health care providers to share a direct and legal responsibility for health and safety. Canadian jurisdictions rely on the IRS as a core component of their OH&S legislation (CCOHS, 2011); health care leaders should remain cognizant of this from a risk management perspective. OH&S improvements will only be successful when health care leaders and the workforce are both fully engaged in worker safety.

Conclusion

> "Safe work creates no obstacles to being competitive and successful. In fact, no country – and no company in the long run – has been able to jump to a high level of productivity without making sure that the work environment is safe."
> ~ *International Labour Organization*

Consensus exists among provincial and territorial health ministers that the rate of growth in health care spending is not sustainable. Interestingly, as we face financial pressure and the public is increasingly anxious about the potential decline in the quality of health care services, the costs of health care workforce injury and illness as well as their impact on the quality of health care services have not been prominent in the national discussion on improved health care spending. Our aging population and increased patient acuity will drive health care expenditures higher in the future. At the same time, health care worker injuries are driving up health care expenditures and WCB claims at a rate that cannot be sustained. A national strategy to improve health care providers' safety and prevent or minimize injuries and illness in the health care workforce has the potential to free millions of taxpayers' dollars for investment in sustainable health services and care across Canada.

Our health care workers are paying a heavy price to deliver quality, safe, and timely health care. We must create a work environment that ensures their safety and well-being Q

The authors acknowledge Mike Carter, Annapolis Valley Health; Leanne Dixon, IWK; Shelley James, Northwood Care Inc.; and Pam Verge, AWARE-NS, for their significant input and feedback on this article.

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JAMES G. WRIGHT

RANDI ZLOTNIK SHAUL

Risk and Innovation at SickKids

A team at SickKids hospital in Toronto has created and implemented a process for reviewing innovations in clinical care. The process focuses on minimizing risks to patients rather than the financial cost of bringing an innovation to the hospital.

Innovation is an essential component of improving care. Health care providers want patients to have the most effective and up-to-date treatments. Still, patient safety must be at the forefront of clinical innovation. The Hospital for Sick Children (SickKids) in Toronto has developed a structured way to introduce innovative procedures, techniques, and technologies, while minimizing the risk of harm to patients.

Patient safety must be at the forefront of clinical innovation.

In 2002, most hospitals did not have such a process, and focused almost entirely on cost when considering the introduction of new interventions (Zlotnik Shaul, McDonald, and Langer, 2009). The leadership at SickKids wanted to ensure the safety of new treatment innovations, minimize risk to patients, and move beyond the cost perspective. A new process was thus created to help manage risk during the in-hospital implementation phase.

The Process

The process was designed for introducing innovations that are new-to-the-institution, not new-to-the-world.* At SickKids, we were specifically interested in controlling and evaluating innovations that had been proven effective elsewhere. Our review process is voluntary as we have no mechanism to try to capture everything new introduced in hospital; however, those responsible for bringing an innovation to the hospital have usually decided to use this process. Note that this process does not apply to research; the Research Ethics Board (REB) addresses research-related issues, including the complex logistical and ethical requirements for the formal evaluation of treatments. Any uncertainties about which review process is appropriate for a clinical development (ours versus a research review) are discussed with the Chair of the REB and the Clinical Chief. At times, clinical innovations have warranted evaluation via both processes.

Policy Elements

Approval for introducing an innovation is given by the Department Chief, and is based on a standardized application form available via the 'Policy and Procedure' link on the hospital's intranet. The application form is relatively short and straightforward, to encourage submissions. It gathers the following information in boxes 1-14:

1-3. Description of an innovation and its planned date of introduction; in some cases the introduction might be planned months in advance and in other cases, dependent on clinical urgency, with only several hours' notice.

We encourage applications, recognizing that what constitutes an innovation is not always clear. For example, surgeons constantly modify surgical procedures, but not all (minor) surgical changes need to be reviewed via this process. We encourage applications for situations in which the surgeon is unsure whether an innovation warrants review; in such cases, it usually does.

4. Provides evidence of effectiveness elsewhere, which usually includes peer-reviewed literature.

5. Collegial endorsement; allows the Chief to evaluate the strength of the evidence supporting the innovation's effectiveness.

6. This evidence is balanced against the sixth box – risks to the patient. Generally, the greater the magnitude and/or frequency of a potential adverse event, the greater the scrutiny of its effectiveness; in such cases, collegial endorsement becomes increasingly important.

The risk to patients is also balanced against the potential harm of not introducing the innovation. For example, the intraocular injection of medication that includes risks, and for which there is inconclusive evidence of effectiveness, would likely be approved for a patient who has a near 100 per cent likelihood of blindness.

7. Notes that the patient has been informed of the innovative nature of the treatment (i.e., consent forms must include the fact that this is an innovative procedure).

8. Requires the disclosure of any conflict of interest (e.g., if the

* *New-to-the-world innovations typically have more complicated review scenarios and can have higher risks associated with their implementation; they are therefore managed by the Research Ethics Board.*

physician has been paid by an outside source to develop and/or test the innovation).

9. Describes the number of patients who will be treated during the test phase; the number will vary from one to ten depending on the number of eligible patients and a clinical assessment of the appropriate number needed to test the innovation (using the judgment of the applicants and their peers).

10. Any resource implications need to be articulated; the director needs to sign off that the innovation does not involve major financial risks to the organization.

11. Ensures that the proposal has been discussed with and approved by the Clinical Health Services Director.

12. Assurance of a device's safety is provided (if the innovation is a physical device).

13. Confirms that the health care professionals involved in the implementation have appropriate skills and training (e.g., handling and sterilization procedures); in some cases, clinicians from outside the organization may participate in the training phase.

14. Finally, all of the innovations are discussed – irrespective of outcome – at the Divisional and Departmental Morbidity and Mortality Rounds (M & M). M & M is a peer forum with a focus on reviewing experience and improving quality. This discussion ensures that all innovations are reviewed in detail and information about their outcomes is shared.

Applicants are required to submit a final report detailing the experience, including adverse events.

Limitations

The policy was initially directed at surgical innovations and was quite successful in this realm. When it was disseminated to the entire institution, thereby encompassing innovations of all kinds, there was relatively little pick-up among other specialties. To expand to organization-wide implementation, SickKids continues to promote the use of this tool, and clearly demonstrate how this review process supports patient safety.

It is also imperative that we create a formal mechanism to ensure that all of the steps in this process happen, including the creation of the final report. The process itself also requires an end point for the evaluation period; as it stands, clinicians are often uncertain if or when innovations become standard practice.

Next Steps

There are plans to ensure that all of the steps in the application are completed. Furthermore, the Department Chief will need to sign off on innovations after receiving the final report, thereby approving or disapproving of its routine use in the hospital. Once a final report is received and discussed at M&M rounds, and provided there have been no serious adverse events, an innovation should be approved for use.

We are aware that some innovations require extended evaluation periods and a framework that allows for their continued monitoring for some time. We also need to determine whether innovations are being introduced across the organization outside the scope of this process; this might be determined via anonymous surveys. We must encourage the use of this process, particularly for disciplines outside surgery.

It would also be desirable to develop a process for evaluating new-to-the-world innovations. We anticipate that their evaluation process would be similar, but would require a greater articulation of the risks involved and possible REB approval. Finally, we need to audit implemented innovations and their impact on patient outcomes.

Conclusion

We have developed a process to govern the introduction of innovation at SickKids. While one could argue that the relative simplicity of the process and its voluntary nature might allow innovations to be introduced outside the process, it must be understood in the context of most institutions, which lack any strategy for the introduction of innovative clinical care. Additionally, a positive approach to patient safety is engendered with the use of this process. Over forty innovations have been introduced at SickKids using this process without a serious adverse event; this means success for both the hospital and its patients Q

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MATTHIEU GIARD

Optimal Treatment Protocol for Obstructive Sleep Apnea

Obstructive Sleep Apnea Syndrome (OSA) is a sleeping and breathing disorder that often requires life-long care. Patients who suffer from OSA can be effectively treated with the use of a CPAP device. As the sale of CPAP machines directly to patients is not regulated in Canada, patients may be put at unnecessary risk of improper fitting and usage of CPAP devices. Without their proper use, patients can remain exposed to untreated OSA and comorbidities.

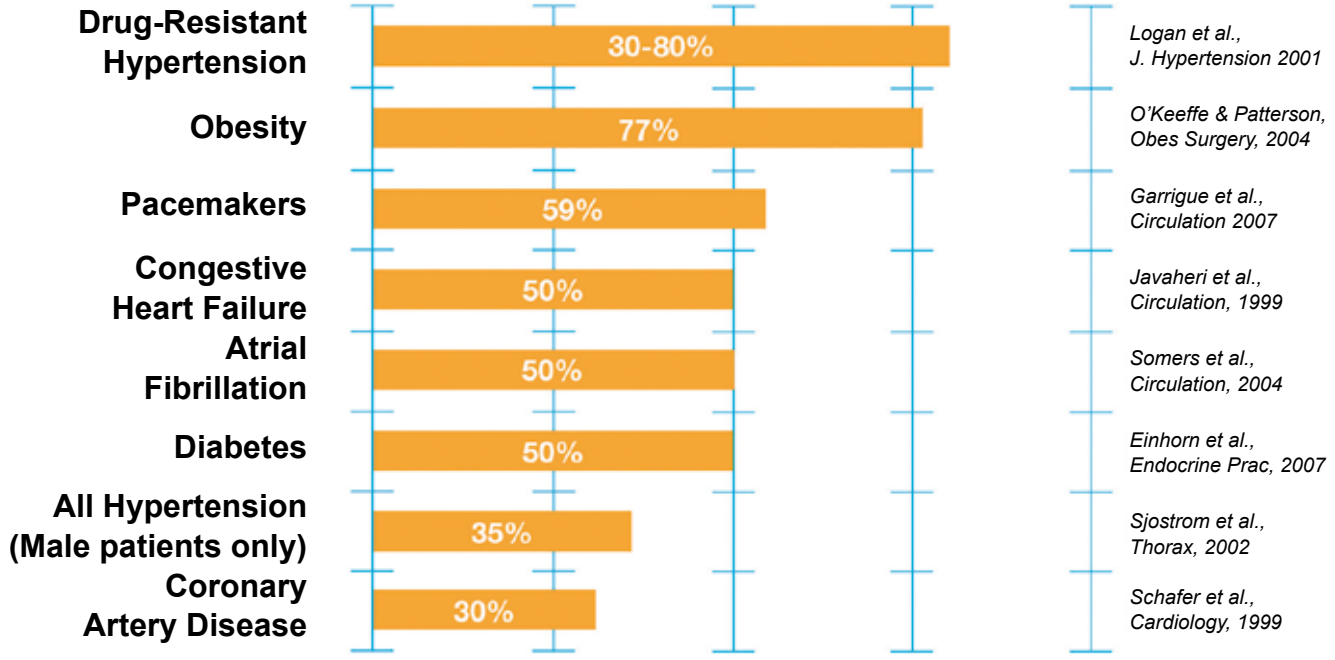
OSA is a combination of the complete cessation of airflow (apnea) and the partial cessation of airflow (hypopnea) lasting at least ten seconds and occurring at least five times per hour of sleep. Moderate to severe OSA is usually treated using a Continuous Positive Airway Pressure (CPAP) device. With a CPAP device, continuous pressure is applied to the patient's upper airway via a mask, so the airway is kept open while the patient sleeps (CADTH, 2003).

OSA is associated with a number of medical conditions, some of which are among the leading causes of mortality in adults. These include hypertension and diabetes, as well as cardiovascular and cerebrovascular diseases. In addition, several neurobehavioral morbidities that are potentially of great importance in terms of both economics and public health are linked with OSA. They include daytime sleepiness and impaired cognitive functioning, which can contribute to motor vehicle crashes and job-related accidents (Leger, 1994).

OSA is estimated to occur in almost 20 per cent of adults, with 6.6 per cent having moderate to severe OSA which results in daytime impairment. Approximately 75 per cent of these OSA cases are undiagnosed and untreated. As the Canadian population's rate of obesity increases, the clinical and public health burdens of OSA are likely to increase proportionally. Therefore, the need to identify and treat OSA, and the need to ensure patient compliance with therapy is increasingly important (Young, 2002).

Treating OSA allows patients to enjoy an improved quality of life. It can often lead to positive outcomes, such as increased activity levels, a decreased incidence of motor vehicle

Figure 1. Prevalence of obstructive sleep apnea in co-morbidities



Source: Kakkar, 2007 (Republished with permission.)

accidents, decreased depression rates, and decreases in the rates of co-morbidities highlighted above (Kakkar, 2007).

Attention to the Process

CPAP therapy is prescribed by physicians and should be provided by a health care professional who can educate patients about OSA and discuss different CPAP devices. The involvement of a qualified health care professional at this stage ensures that patients are educated about their devices, thereby making optimal treatment more likely.*

This health care professional should also custom fit a nasal mask (or other interface) to the patient, and adjust the device's output pressures and other clinical features.

Following up with a patient is just as critical as the initial setup, which involves a fitting with a CPAP device and mask. During the follow up, the health care professional can check that the CPAP device is functioning as desired and is delivering the prescribed flow, in order to mitigate risks and potential side effects. Figure 2 describes some of the most common corrections necessary during follow up.

The first month of CPAP treatment often determines patients' long term compliance rates. Obviously, if a device is uncomfortable and does not deliver the appropriate air flow, the patient will not want to continue treatment. Several large studies have shown that CPAP compliance rates range from 65-80 per cent (Sin, 2002).

VitalAire – a leading CPAP provider in Canada – provides a 'Sleep Diary' for most new patients, allowing them to accurately chart their CPAP use, sleep time, comfort, and energy levels each day. This diary is reviewed with the patient at their one-month visit. A respiratory therapist also contacts the patient within the first few days of treatment to discuss their comfort and use of the CPAP device. The respiratory therapist also checks in regularly during the following weeks and months, to ensure maximum benefit from and compliance with the treatment; eventually, the follow up calls are yearly. If patients have questions or concerns about their CPAP device, they can contact a health care professional by phone.

Risks and Regulations

Today, significant risks exist for CPAP therapy patients.

Today, significant risks exist for CPAP therapy patients.

A particular area of concern is the direct sale of CPAP devices in store front locations and by online retailers. The danger is that these purchases are categorized as *retail activity* in Canada (Health Canada, 2011), and as such, the sellers do not require a Medical Device Establishment License. There is no federal regulatory oversight of such retailers or the devices they sell. Unfortunately, CPAP therapy can thus be provided as an unregulated equipment sale with little or no patient education or follow up.

OSA is effectively treated only when CPAP is used every night. Studies agree that education about OSA, care from experienced health care professionals, patient follow up, early intervention for side effects, and monitoring adherence all increase the chances of a treatment's success. The risks of unsuccessful treatment increase when there are no provincial standards of practice and no federal regulatory oversight of equipment providers' activities.

Health Canada provided warnings to the public in April 2011 (Health Canada, 2011) about purchasing medical devices – CPAP units, masks, and associated accessories – via the internet. This posting was intended to educate consumers about these types of purchases, informing and warning them that internet sales do not entail any guarantee of proper therapy, adjustment, assessment, education, treatment, or follow up.

Responsible health care providers offer patients total care solutions and long-term treatment, as CPAP therapy is not a simple, one-time purchase; ideally, it is an ongoing process. Furthermore, if a CPAP device is not used correctly, the patient will continue to face an increased risk of comorbidities. Reputable CPAP therapy providers will follow proper treatment protocols to ensure optimal clinical outcomes and improved prognoses. This includes conducting thorough patient trials of CPAP therapy, which can involve making changes to mask titration if necessary, and adjusting the CPAP device settings. During the trial stage, CPAP therapy providers also ensure proper infection control to minimize the risk of cross contamination. Eventually, an appropriate mask selection is made (matched to patient physiology and lifestyle), a proper fitting ensues, and positive clinical outcomes are expected.

As internet providers do not offer the essential components necessary to safe, ongoing, and effective treatment, one-off storefront and internet purchases of CPAP devices should be considered high risk.

* *It is generally accepted that a regulated health professional will conduct these activities only in Ontario and Quebec.*

Figure 2. PAP Side Effects and Possible Interventions

Side Effects	Interventions
Due to mask	
Air leaks (conjunctivitis; discomfort; noise)	Proper mask fitting; proper mask application (education); different brand/type of mask
Skin breakdown	Avoid over tightening: intervene as above for leaks; alternate between different mask types; nasal prongs/pillows; tape barrier for skin protection
Mouth leaks	Treat nasal congestion if present (see below)
Mouth dryness	Chin strap; heated humidity; full-face (oronasal) mask; consider bilevel PAP, flexible PAP, lower pressure, APAP
Mask claustrophobia	Nasal pillows/prongs interface; desensitization
Unintentional mask removal	Low-pressure alarm; consider increase in pressure
Nasal symptoms	
Congestion/obstruction	Nasal steroid inhaler; antihistamines (if allergic component); nighttime topical degongestants (oxymetazoline); nasal saline solution; humidification (heated); full-face (oronasal) mask
Epistaxis	Nasal saline solution; humidification (heated)
Pain	Humidification (heated)
Rhinitis/rhinorrhea	Nasal ipratropium bromide
Other problems	
Pressure intolerance	Ramp; flexible PAP; bilevel PAP; APAP; lower prescription pressure temporarily: accept higher AHI; lower pressure and adjunctive measures (elevated head of bed, side sleeping position, weight loss)
Aerophagia/bloating	Bilevel PAP; flexible PAP; reduce pressure

Source: Kakkar, 2007 (Republished with permission.)

Having recognized the risks posed to patients when they do not receive a full spectrum of services from their CPAP provider, VitalAire uses an integrated approach in the development of its internal programs, specifically targeting patient training, education, follow up, and long-term compliance. The training programs are reviewed by physicians who specialize in OSA, and patients are carefully monitored once they have been fitted with the proper CPAP equipment.

VitalAire's 100+ trained and qualified respiratory therapists follow internally-developed standards of practice, even though these may not be legislatively mandated. Additionally, having spent over 10 years as a client of Accreditation Canada, VitalAire's infrastructure and its continuous quality improvement processes are of the highest quality and well designed. At a federal level, VitalAire complies with the Medical Devices Regulations, which cover the supply of devices through to their delivery to patients.
Regulations protecting all Canadian consumers who require the use of CPAP devices would ensure a better chance of treatment success. Regulating the provision and follow up of CPAP devices would be an excellent step in making Canadian patients safer, and helping them live with fewer risks Q

Matthieu Giard, *P.Eng. (France), is the President and CEO of VitalAire Canada, a Canadian health care leader, offering medical gases and services as well as home health care oxygen programs and sleep apnea treatment. He was a strategy consultant when he joined Air Liquide, the parent company of VitalAire, and since then has had responsibilities in Belgium, the Netherlands, the USA, and Canada.*

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Accreditation Canada

Safe and Effective Change

The articles in this issue make it clear that minimizing risk is inextricably linked to innovation and improving the quality of care. Furthermore, it usually requires direct communication between colleagues, staff, patients, and organizations to be effective. Risk can be viewed as an integral component of quality improvement – organizations must have the ability to plan, analyze, and take risks in order to improve and move forward. Still, they must do this in a safe and effective manner in order not to jeopardize the safety of patients, families, and all those involved directly and indirectly in care provision.

Accreditation provides tools that integrate with client organizations' quality improvement activities. One of the main goals of accreditation is safety; it's about anticipating, identifying, managing, minimizing, and mitigating risk.

Thank you to all the authors who contributed to this issue, for sharing their insights and expertise.

Further to what you've learned here, a number of educational opportunities are available through Accreditation Canada. Upcoming workshops – including "Maintaining Momentum" and "Ethics" – and webinars about leading the accreditation process are taking place in May and June, and are detailed on our website (www.accreditation.ca) under "Educational Resources."

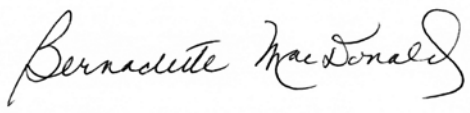
At this time, applications are being sought from health care professionals who wish to become surveyors with Accreditation Canada. Recruitment information is available on the website under "About Us," then "Surveyors," then "Current Opportunities." The deadline for applications is 11 May.

Be sure to look into the 2012 National Health Leadership Conference this summer in Halifax, NS. Accreditation Canada's President and CEO, Wendy Nicklin, will facilitate a panel discussion on "Sustaining Public Trust" on 5 June.

Medication management is the theme for the next *Qmentum Quarterly*. Statistics indicate that a high number of preventable adverse drug events take place every year. Medication management offers concrete steps to avoid or minimize these preventable adverse events.

This issue will feature contributions from some of Canada's leading health care authorities, who are using innovative ways to deal with the challenges posed by medication management. We look forward to sharing their experience with you.

Together in advancing quality and safety!



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