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CIHR IRSC

Institute of Health Services and Policy Research

Research Spotlight

Patient Safety

Dr. Peter Norton

In the Spring of 2002, a group of 15 researchers from seven universities across Canada received funding for the Canadian Adverse Events Study, the first national study examining the problem of adverse events in Canadian hospitals. Adverse events (AEs) in this study were defined as "unintended injuries or complications that result in disability, death or prolonged hospital stay, and are caused by the care that patients receive, not an underlying disease or condition." Dr. Ross Baker of the University of Toronto and I were the

Principal Investigators of this study, which was jointly funded by CIHR's Institute of Health Services and Policy Research (IHSPR) and Institute of Population and Public Health, and the Canadian Institute for Health Information (CIHI).

The results, published in the *Canadian Medical Association Journal* in May 2004, showed that in the fiscal year 2000, approximately 185,000 adult acute care admissions to hospital out of a total of 2.5 million such admissions (excluding pediatric, obstetric and psychiatric admissions) could have been associated with an AE. Thus, the overall rate of adverse events in Canadian hospitals in the year 2000 was approximately 7.5%. Not surprisingly, these findings roused considerable interest from researchers, decision makers, the media and citizens across the country. The paper was downloaded from the journal's website more than 25,000 times in the first four days after its publication and, in the year following publication, the study team authors gave more than 50 presentations to members of the healthcare community. One of the reasons we undertook this study was our belief that providing Canadian data on the rate of AEs would accelerate health care and patient safety work in Canada. With the support of CIHR funding for our first-ever national study of patient safety in Canadian hospitals, I believe this goal has been met.

The Canadian Patient Safety Institute is taking a leadership role nationally in the area. The provinces are all engaged, each having developed one or more bodies charged with enhancing safety in healthcare. And, in April 2005, Safer Healthcare Now! was launched, perhaps the most important development from a practice point of view. This campaign,

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modeled after the US 100,000 Lives campaign and supported by key national and provincial bodies, is designed to assist practitioners in enhancing the quality and safety of the care they deliver to patients through six targeted interventions. It is a collaborative effort aimed at reducing the number of injuries and deaths related to adverse events, such as infections and medication incidents. Currently, more than 600 frontline teams across the country are engaged in this initiative. Many have made substantial improvements in care already and some are working to spread their improvement strategies across their organizations.

Many of our national healthcare organizations are also working to promote safety. I will give just two examples. First, the Canadian Council on Health Services Accreditation has made patient safety an essential element of accreditation and, to this end, has developed and implemented 21 Patient Safety Goals and Required Organizational Practices. Second, CIHI published national indicators for patient safety in 2004 and is now offering organizations their own hospital standardized mortality ratios.[1] It is hoped that these indicators will assist participating organizations in examining their overall safety performance and allow them to identify areas for improvement.

There has been real growth on the research side as well. According to CIHR's funding database, between 1999 and 2007 there were at least 56 initiatives involving patient safety, with a total value of more than $6.4 million. Of these, the overwhelming majority were funded after 2002. Most recently, in early 2007 CIHR, in partnership with the Canadian Patient Safety Institute, launched an Operating Grant Priority Announcement and the Dr. David Rippey Patient Safety Fellowship Award in patient safety. The Canadian Health Services Research Foundation, one of CIHR's key partners, has established *Managing for Quality and Safety* as one of its Priority Research Themes and has allocated substantial funding to the initiative.

These initiatives contribute valuable information to patient safety efforts in Canada and also raise new questions for the patient safety research agenda. Here are a few that attract me and that warrant increased attention:

- How do we move organizations' patient safety culture forward? Do the suggested interventions work? What lessons can be learned from abroad?
- Is it better to focus more broadly on improving reliability in organizations as opposed to more narrowly on safety alone?
- Is there a business case for patient safety? How much should Canada invest in patient safety initiatives?
- What is the relationship between near misses and adverse event? Can we use near misses to drive the necessary system changes for increased safety?
- How should the next generation of professionals be educated in order to maximize health system safety?
- How can we improve the evidence available on the safety and effectiveness of medicines used in the long term in a real world environment?

CIHR and our health services and policy research community are making valuable contributions to the patient safety research agenda, as the diversity of policy-relevant research profiled in this *Research Spotlight* demonstrates. We have an opportunity to help develop best practices in patient safety and promote patient safety culture in health care organizations. But, there remains much to be done and this is but a short list of priority areas for investigation. The time is ripe for this work – so let's get on with it.

[1] Hospital standardized mortality ratios were developed in mid-1990s by Sir Brian Jarman of Imperial College in the UK. The Canadian version of the HSMR was developed by the CIHI in conjunction with the Safer Healthcare Now!

Peter Norton
Professor and Head of Family Medicine
University of Calgary

FEATURE INTERVIEW:

Roundtable discussion probes future of patient safety research

Dr. Ross Baker is a Professor in the Department of Health Policy, Management and Evaluation, University of Toronto where he teaches and does research on quality improvement, patient safety and organizational change. Ross co-chairs a working group on methods and measures for patient safety for the World Health Organization. He chairs both the Measurement Working Group and the Advisory Committee on Research and Evaluation for the Canadian Patient Safety Institute. He also serves on the boards of the Health Quality Council of Saskatchewan, the Institute for Safe Medication Practice (ISMP) Canada, and the Clinical Standards, Guidelines and Quality Committee of Cancer Care Ontario. Ross was the first Canadian to serve as Co-Chair of the Institute for Healthcare Improvement (IHI) U.S. National Forum, the leading quality and safety meeting. He also helped to found the Quality Healthcare Network in Ontario, and is a member of the Steering Committee for the Safer Healthcare Now! campaign (the Canadian adaptation of the US 100,000 lives initiative), organized to improve patient safety. Ross was principal investigator for the project "Adverse Events in Canadian Hospitals" and together with Peter Norton and a team of investigators across Canada published the results of the study in the *Canadian Medical Association Journal* in 2004. His current research focuses on further analyses of the Canadian Adverse Events study data, and on the governance of patient safety activities in Australia, New Zealand, England and the US

Dr. David Bates is the Center Director on one of three national Centers of Excellence in Patient Safety and Research supported by the Agency for Healthcare Research and Quality (AHRQ) in the United States, focusing on improving medication safety across the continuum of care and patient groups. He is also the Chief of the Division of General Medicine at the Brigham and Women's Hospital, and the Medical Director of Clinical and Quality Analysis for Partners Healthcare. He is a Professor in the Department of Health Policy and Management, in the Harvard School of Public Health where he is the Co-Director of the Programme in Clinical Effectiveness, and Professor of Medicine at Harvard Medical School. He serves as External Program Lead for research for the World Health Organization's Global Alliance for Patient Safety. He is also the incoming board chair for the American Medical Informatics Association. Dr. Bates received his BS degree in Chemistry from Stanford University, his MD from Johns Hopkins School of Medicine and his M.Sc. in Health Policy and Management from the Harvard School of Public Health.

Steven Lewis is a well-known leader in Canadian healthcare and President of Access Consulting Ltd. A health policy and research consultant based in Saskatoon, he is also an Adjunct Professor of Health Policy at the University of Calgary. Prior to resuming a full-time consulting practice he headed a health research granting agency and spent seven years as CEO of the Health Services Utilization and Research Commission in Saskatchewan. He has served on various boards and committees, including the Governing Council of CIHR, the Saskatchewan Health Quality Council, and the Health Council of Canada. He co-edited the first five annual CIHI *Health Care in Canada* reports, and has written extensively on how to strengthen medicare. He is an Associate Editor of the Journal of Health Services Research & Policy, and a member of the editorial board of the new journal *Open Medicine*.

Steven Lewis: In 2002, Ross Baker and Peter Norton submitted a report to Health Canada entitled *Patient Safety and Health Care Errors in the Canadian Health Care System*. One of its recommendations was to make safety research and system change a priority at both the Canadian Institutes of Health Research and the Canadian Health Services Research Foundation. Is this recommendation still feasible and do you perceive any progress in that regard?

Ross Baker: I think the recommendation still has merit. The reality is that we still don't have a large enough cohort of researchers focused on this area. Now having said that, I'd say we've made good progress and we have a lot more people interested in safety research and up to speed on some of the relevant knowledge necessary to do this kind of work.

So that's very encouraging. But the issue in my view is that the patient safety agenda is really quite broad and cuts across many different fields

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of endeavours. So finding ways to engage researchers whose primary interest and experience has been in other fields of research and to engage them in linking their clinical research expertise to patient safety and improvements in safety is a critical and important step.

SL: And Dr. Bates, from your vantage point in the United States, how do you think Canada is doing in its research and analysis agenda on patient safety and error management?

David Bates: I would agree with Ross that a lot of progress has been made but there's still room for improvement. In the US, the Agency for HealthCare Research and Quality (AHRQ) made available $50 million a year for several years for research on patient safety and that had an enormous impact on drawing researchers from a whole variety of areas into patient safety research. Now, as a result, there are many more people who are interested in patient safety research than there ever were in the past. Despite that, I would say that in the US, there are still many gaps to be addressed and I think that issue is even greater in Canada.

SL: Now, in both countries, the initial landmark reports were system level and nationwide. We know that quality improvements and error reduction are ultimately substantially local activities. Do you think the system-level data have resonated at the local and individual facility level? Do you foresee a time when we can get real-time data at an actionable level, or do you think we're still some way off in this regard.

DB: I think the data have helped a great deal to build awareness at the level of individual facilities and units, but that facilities are still struggling about which interventions to implement. I also believe we need research to build industrial-strength tools for detecting adverse events. Our group has done some work in which we go through discharge summaries and use techniques like natural language processing to identify signals that suggest that a patient has had an adverse event. That approach works fairly well, but it's not routinely used anywhere.

RB: The principal benefit of national studies was awareness raising. What we have to do now is develop local sources of information, and there are a lot of challenges in doing that. Beyond that, once we have the information, we have to figure out how to craft and assess interventions to improve safety. That's a huge challenge. I don't think we're anywhere close to understanding how to do that in most settings.

Organizations and systems that have well-developed electronic health records have a clear advantage, but even so, there tend to be limitations to their ability to generate applicable real-time data without the sorts of high level manoeuvres that Dr. Bates and his colleagues have been able to do at the Brigham and Women's Hospital in Boston and a small number of other hospitals.

SL: So that leads us into some further work that may be needed. Where do you think the new frontiers lie in patient safety research? What kinds of studies, what kind of methodological advances do we need in order to make further progress?

DB: I think that monitoring is an area that clearly needs additional attention, both inside the hospital and outside of it. It should be possible to identify patients who are about to deteriorate before they actually get worse and intervene earlier. Another area that I think needs a great deal of attention is transitions. It's become apparent that patients are especially vulnerable after transitions and we need to develop tools to make transitions safer.

Information about return on investment or the cost effectiveness of interventions would be really helpful to organizations to help them prioritize. And another frontier is building better detection tools so that we could know where we are in an ongoing way. Basically, we have no sense of whether things are improving or changing and having better detection tools could really help a great deal with that.

RB: David's pointed to some very important areas, and I'll just elaborate on a couple of these. I think that there's a need for a much more detailed understanding about communications strategies and information exchange, both in the acute environment and elsewhere. We need to start to look at the problems that arise in terms of inadequate communication and misunderstandings that arise in hand-offs, both within and across disciplines.

We have tended to think about technology-related communications strategies such as the tablet computer as the key. But we also need to think about better teamwork strategies to improve the exchange of information and the development of a common agreed-upon plan to deliver appropriate care to patients at the right time in the right fashion. This is another major challenge.

I agree with David's comments on trying to understand interventions more effectively, but I think we have to raise the bar in some ways, because we're intervening in systems that sometimes are fundamentally poorly designed. Many healthcare systems and processes have looked quite similar for 100 years. I think we have to go back and rethink the design of the care environment and the design of roles of people in that care environment and to involve people who have engineering skills and team development skills to rethink the nature of care.

This is not the typical way we've done research but it's an opportunity to use the safety and quality agenda to go back and rethink the nature of the care environment and the roles that people play in that environment.

SL: It sounds like, in your view, the next generation of this research is about change and change management, less about describing the nature of the problem. To return to an American

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example. When the principal authors and originators of the IOM (Institute of Medicine) report in the United States reconvened about five years later, and asked themselves whether a lot had changed since they revealed the extent of avoidable deaths in US hospitals, the consensus seemed to be not much had changed. This also suggests a research focus on the mechanics of change and the factors that either facilitate or inhibit change.

A few years after that, do you think that's still the case? What do you see as the next major types of research that need to be undertaken?

DB: I actually think we are moving forward. I think we know a lot more about the epidemiology of the prevalence of safety issues in the US than we did at the time that the IOM report was published. I think we do need to do operations-type research that is multi-disciplinary and brings together groups with different perspectives like human factors and informatics and sociology to sort out what works. I think that there's also essential research to be done in how to spread change.

But I also think that there's a great deal of work still to be done in terms of figuring out what works. And we haven't sorted out all the epidemiological issues either, especially outside the hospital. The vast majority of what we know does come from the hospital. I think the issues and the solutions are likely to be substantially different outside.

SL: The 100,000 Lives campaign in the US and Safer Healthcare Now! in Canada have produced very promising early returns. What do we need to do next to sustain and go beyond these achievements?

RB: These two initiatives have both shown that you can make interventions happen in places in relatively short fashion. But having said that, there're still important issues about whether you can sustain those gains and whether you can make this into a systematic and well coordinated effort.

SL: We haven't touched on the role, if any, for the public and patients in either the research agenda or patient safety more generally. Can we expect the public to be an independent driver of improvement, or do you think the public is still basically a bystander in all of this?

DB: I think patients can and should play a key role in shaping the research agenda. They have a perspective that no one else does. They care deeply about this issue. When you talk to patients, you find many more problems than you find if you just look at medical records. And that alone is important.

RB: Involving patients, those who have been harmed and those who haven't been harmed, is critical, yet very challenging. Patients have been mostly used to raise awareness and create a momentum for change. But we need to engage patients in ways that inform the work that's done to improve safety. We still have to learn a lot about that.

Canada lags behind the UK and probably the US in terms of understanding ways to do this. We seem to be much more hesitant to involve patients in commenting on events and contributing to design strategies to reduce the likelihood that those events would be repeated. But it's a real opportunity. The places that have been successful in engaging patients in an authentic way have also been places that have been able to accelerate their work, which says something about the value of that activity.

SL: What scale of investment does Canada need to make over the next three years to ensure that the research agenda accelerates, covers the right areas, moves beyond the acute care setting, builds capacity and develops new techniques to sustain both the knowledge and ultimately the improvements?

RB: The actual dollar number is an impossible question, but the basic goals that I would set are to create an agenda that allows us to develop research teams that bring some of these new skills and new disciplines into patient safety research in a meaningful way, linking clinical and health services researchers, so that we can identify new tools, new metrics and new interventions. The real challenge is to figure out what the right models are for this kind of work. Some of it's going to have to be small-scale developmental assessments and small-scale implementation and that's not usually funded through CIHR.

I think we need to think very carefully about where the current investments are going, and we need to have a longer-term plan to create a different type of research enterprise that will inform the identification, implementation and sustainability of safer care.

DB: Perhaps there should be several centres of excellence for patient safety research that bring together a broad array of people and are funded on a longitudinal basis. There also needs to be some support for large studies that will answer questions that cannot be answered without, without a substantial outlay of funds.

SL: David, we often hear that so-called applied research isn't applicable in very many places because the local context is always different. Is that true in this area? Has international work yielded lessons should be applicable just about anywhere?

DB: I think there are many things that will be generic and that will be usable in many places. I would strongly support Ross's notion that there is an opportunity to learn from other countries. There's much more international focus now than there was. And there are, I believe, and will be many more opportunities to do things once and to share some of the lessons learned. And that will dramatically bring down the cost of learning about what to do to improve safety.

Infection Control Champions for Safer Care

Principal Investigator: Dr. Marc Romney, Providence Health Care (Vancouver)
Co-Investigator: Gayle Shimokura

Back in the "old days", most hospital wards had a "Head Nurse". This person was, among other things, responsible for ensuring that procedures for infection prevention and control, and hygiene, were adhered to. Dr. Marc Romney wants to turn the clock back in that respect. He wants to place local infection control champions back on the wards to help educate and motivate ward staff about infection prevention and control, and hospital hygiene in general.

The problem, Dr. Romney says, is that many hospitals in Canada have an infection control team that, while doing its utmost to be effective, is too small and under-resourced for the number of patients the team has to preside over. He sees placing "local experts" (infection control champions) on wards as a way to reduce cross-transmission of infections and keep patients healthier, while potentially reducing costs associated with hospital-acquired infections. The infection control champion would be a frontline nurse recruited from each clinical unit who, as part of his or her regular duties, would promote, teach, monitor, and motivate other healthcare workers to implement best practices in infection prevention and control.

With a 2006 CIHR Partnerships for Health System Improvement (PHSI) grant, Dr. Romney is conducting a randomized clinical trial to compare wards at Vancouver's St. Paul's and Mt. St. Joseph Hospitals (Providence Health Care) that have infection control champions with those following the *status quo*. He expects to see better compliance with the basics of infection prevention, such as better hand hygiene and patient isolation when an infectious agent is present, in the wards with the champions. Among the other outcomes he will be looking for are greater awareness of infection prevention and control, decreased transmission of antibiotic resistant organisms, and an improved ability among staff to identify and correct suboptimal practices. Ultimately, the goal is to reduce the number of hospital-acquired infections.

As an example, he cites the process for identifying and correctly storing recently cleaned equipment, including information on when it was cleaned. He and his colleagues have identified some straightforward processes for doing so – but they need to be implemented at the local level, on the wards. This, he says, is the kind of task infection control champions could undertake.

And while he is starting with acute care wards, he would like to see the system of local infection control champions, if it proves effective, extended to other types of care, such as residential care.

Similar innovations are already underway in the United Kingdom, where the champions are known as "link nurses". But, says Dr. Romney, there are only a few published reports describing the extent to which these local experts make a difference. Providence Health Care, he says, is one of the few places looking at it using epidemiological methods.

"It's very practical, worthy of study," he says, "and it's innovative."

CIHR's Partnerships for Health System Improvement initiative is designed to support teams of researchers and decision makers interested in conducting applied health research useful to health system managers and/or policy makers. Successful teams include at least one decision maker as an applicant, and together teams conduct health services, health systems and policy research projects up to three years in length in thematic areas identified as high priority in national consultations conducted by IHSPR, the Canadian Health Services Research Foundation (CHSRF) and other partners.
Tip: This funding opportunity will be posted on the CIHR website in mid-July. For more information, visit the Partnerships for Health System Improvement page at http://www.cihr-irsc.gc.ca/e/32476.html

Maintaining continuity of medication care in and out of hospital

Principal Investigator: Chaim Bell, St. Michael's Hospital (Toronto)

As a hospital-based general internist at St. Michael's Hospital in Toronto, Chaim Bell sees people when they come into hospital. Many of the seniors who pass through his care are on a wide variety of medications for chronic diseases, which oftentimes have little or nothing to do with the reason they are in hospital.

The medications that seniors take for chronic disease "are lifelong medications," says Dr. Bell. "They provide risk reduction. And, if you stop taking the drugs, it increases the risk of an adverse outcome."

But too often, he says, when seniors leave hospital, they end up discontinuing their previous medications.

"It's a shame," says Dr. Bell. "It's hard enough to get somebody on the right medication. They've demonstrated adherence. And then the system is making the problem." Indeed, poor care coordination between hospital and ambulatory care, and hospital and community care, can result in such inadvertent discontinuation of chronic disease medications. This can compromise patient safety by increasing a patient's risk for potentially avoidable adverse events.

It is this systemic problem that Dr. Bell is focusing on through his "other" role as an adjunct scientist at Toronto's Institute for Clinical Evaluative Sciences, with the help of a 2006 CIHR Institute of Aging New Investigator Award.

In previous studies, Dr. Bell examined seniors entering hospital for elective surgery, compared to those who had day surgery. With elective surgery, any change in long-term medications post-discharge would likely be unintentional. He also examined charts from three Toronto-area intensive care units (ICUs), where he found that 20-25% of drugs were not re-ordered when patients left the ICU or the hospital.

He is now studying whether patients resume their medications once at home by comparing patients admitted into the ICU, those admitted to hospital without being in the ICU, and those not admitted to hospital. In addition, he's looking at six different groups of common medications that target high-risk chronic diseases.

He wants to find out whether any of these patients discontinue their medications in the six months following their stay in hospital (or during the study period for those not admitted to hospital). He can find this out by examining the provincial drug assistance program database.

His next step will be to take this information to determine which people (those admitted to ICU, those admitted only to hospital, or those not admitted to hospital at all) and/or which groups of medications are most at risk for discontinuation. These people and/or drugs can then become part of what Dr. Bell calls "medication reconciliation" – making sure that, when seniors leave hospital, they're on the same medications they were when they entered the hospital. His ultimate goal is to develop strategies for this reconciliation, to make sure that no one "fumbles the ball".

The CIHR New Investigator award will provide support to Dr. Bell for his research aimed at enhancing medication safety among seniors. "I get my research ideas from my clinical practice," says Dr. Bell. "I want to improve things for my patients."

CIHR New Investigator Awards are designed to further research advances and careers of outstanding New Investigators and provide them the opportunity to develop and demonstrate their independence in initiating and conducting health research. CIHR has offered a number of different New Investigator funding opportunities over the years, including Partnership, Industry-Partnered and other targeted New Investigator programs. A New Investigator is defined as a researcher who has held a full time research appointment (e.g., faculty appointment providing eligibility to apply for grants and/or supervise trainees), for a period of 0 to 60 months as of the competition deadline. **Tip:** This funding opportunity will be posted on the CIHR webpage in mid-July. For more information, visit the New Investigator Award page at http://www.cihr-irsc.gc.ca/e/22372.html.

Home care, Safe care

Principal Investigator: Dr. Ariella Lang, University of Ottawa

Most investigations of patient safety focus on hospitals. Yet, with the location of care rapidly shifting from the hospital to the home, Ariella Lang is committed to expanding the safety agenda to include home care.

Dr. Lang, a Postdoctoral Fellow with a CIHR Fellowship at the University of Ottawa working under the supervision of Dr. Nancy Edwards, and Principal Investigator on a 2007 CIHR operating grant, is conducting a ground-breaking study of safety in palliative home care.

Several factors make patient safety a different issue in the home, says Dr. Lang. In particular, the term "patient safety" does not encompass the safety of family members, unpaid caregivers, or the paid care providers. With paid providers, who are sometimes at a house only a couple of hours a day, patient care – and safety – is left to a care network of family members, friends and neighbours.

In these home care situations, Dr. Lang says that a broader approach to safety is necessary. "You have to include not only the patient, but also the people around him or her, and you have to look beyond physical safety to include emotional, social, and functional safety as well." And, rather than focus on adverse effects, it is more beneficial to focus on decreasing risks and potential safety hazards.

In fact, Dr. Lang is taking a unique approach to her research. As well as in-depth interviews and focus groups, she is conducting what is called "environmental walkabouts" – literally, walking around the home, with the patient or the caregiver, taking pictures and talking about perceived safety issues.

During the walkabout, Dr. Lang hears about issues patients consider important to their safety and well-being, such as barriers and risks that challenge safety in their home. These may include such issues as increased use of technology designed for acute care settings that are managed in the home by untrained family members or friends, and the mental health ramifications of caregiver burden. "We want them to show us, not only tell us," says Dr. Lang.

There is an additional benefit to the photographs. One of Dr. Lang's co-investigators on the project is Dr. Tony Easty, the Director of Medical Engineering at Toronto's University Health Network. Dr. Easty is an expert in what is called human factor principles – the effort to understand and prevent human errors through systemic changes – for instance, by making it impossible to put the round tube into the square hole. Human factor principles have long been used in the aeronautics industry, but are just starting to be incorporated into the healthcare system, where they are mostly used in acute care. No one has yet brought them into a home care setting – until now.

This unique approach could help increase the health, well-being, and safety of all those receiving and providing home care, including those both in and outside a palliative care context. Dr. Lang and colleague's research will also have implications for home care research, practice, education, and policy in general.

Tip: CIHR-IHSPR will be launching a Priority Announcement for Fellowships in Health Services and Policy Research in mid-July 2007. This priority announcement is intended to increase the supply and build the capacity of excellent researchers in Canada who successfully lead, participate in, and translate outstanding health services and policy research in thematic areas deemed important through national consultations. For background information on the Fellowships in Health Services and Policy Research, visit http://www.cihr-irsc.gc.ca/e/32800.html. And, check out IHSPR's New Funding Opportunities webpage in mid-July for the 2007 priority announcement for Fellowships at http://www.cihr-irsc.gc.ca/e/26877.html.

Student feature: "If you don't know about them, you can't prevent them"

Identifying, understanding and overcoming barriers to medication error and near miss reporting in Nova Scotia hospitals

Principal Investigator: Nicole Hartnell, Dalhousie University

Medication errors in hospitals can range from something as harmless as a missed dose of painkiller to something as serious as the administration of the wrong medication. But while the term covers a wide range of possibilities, one commonality is that anywhere from 50% to 96% of adverse events, including medication errors, go unreported.

"If errors are not reported, if you don't know they're happening, if you don't know what's causing them, you can't prevent them," says Ms. Hartnell.

This doctoral student in the Interdisciplinary PhD program at Dalhousie University is working under the supervision of Dr. Neil MacKinnon from the College of Pharmacy, and has received a CIHR Canada Graduate Scholarship Doctoral Award to learn more about why medication errors often go unreported. Ms. Hartnell hopes that her research will enable her to provide guidance on improving patient safety in medication use.

This is an area that lacks substantive information. What little information that exists generally comes from the United States and Europe and, even figures on underreporting tend to be extrapolated from more general studies of adverse events in hospitals.

While Ms. Hartnell has yet formally analyzed her data, some key reasons for the underreporting of medication errors jumped out from the focus groups she held with different health professionals from hospitals across Nova Scotia.

First, says Ms. Hartnell, there is fear. Not necessarily fear of litigation, although that did come up, but fear about being censured by licensing boards or hospital administration. Participants also acknowledged a fear about the potential effect that being involved with a medication error could have on their reputations among their peers and patients.

Uncertainty was also mentioned as a primary reason for underreporting. Health professionals sometimes are not entirely sure what constitutes a medication error: is it an error if a dose of a non-essential medication is missed? Is it an error if the wrong medication is caught before it is administered? Participants also reported uncertainly regarding the logistics of reporting. For example, should someone submit a formal report for an error they were not personally involved with, but perhaps witnessed? Also, is there a way to streamline the reporting process to cut down on the time it takes to submit a formal report (upwards of 30 minutes in some hospitals)? Finally, some health professionals mentioned an uncertainty surrounding the importance of reporting. They felt reporting might improve if it was impressed upon them why it was something they needed to do and how it could make a positive difference in the health of their patients.

And that leads Ms. Hartnell to conclude, albeit tentatively, that education is the key to improving the reporting of medication errors – teaching health professionals what to report, how to report it and why reporting is important.

Errors, says Ms. Hartnell, are rarely the result of one person's actions. The reasons tend to lie more in the way systems – for determining dosage, for delivering medications to patients, etc.– are set up. Reporting errors, she says, allows hospitals to learn from negative experiences and alter systems to ensure that the errors do not happen again. And that, she says, could have a major impact on patient safety in Canadian hospitals.

The CIHR Canada Graduate Scholarships Doctoral Awards are intended to provide special recognition and support to students early in their academic research career, providing them with an opportunity to gain research experience in a health related field in Canada. Doctoral candidates are expected to have an exceptionally high potential for future research achievement and productivity. These awards are launched on an annual basis. For more information, please visit the Graduate Training Award - Doctoral: Canada Graduate Scholarships at http://www.cihr-irsc.gc.ca/e/24189.html.

Should we try the Kiwi model for no-fault medical error?

Colleen M. Flood, Canada Research Chair, Scientific Director of the CIHR Institute of Health Services and Policy Research and a law professor at the University of Toronto.
Lorian Hardcastle, PhD candidate, the Faculty of Law, University of Toronto.

Courtesy of the US media, we hear many horror stories about medical malpractice doctors ordering unneeded tests and procedures, astronomical jury awards, and doctors in high-risk specialties unable to pay insurance premiums.

In Canada, the situation has not reached that point. But there are many concerns with the tort system[2], the cost and length of litigation, doctors keeping mistakes secret in fear of liability, and the "forensic lottery" of malpractice litigation that may punish the innocent and ignore the wrongdoer.

We now have a much better understanding of how risky it is for patients in a healthcare system and the high number of mistakes that occur - errors that often cannot be attributed to one person but the system as a whole.

The renewed emphasis on a safety movement at a systems level is at odds with the individualized nature of litigation.

In a successful malpractice case, one patient may succeed but this does not seem to do much for the overall safety of the system. These problems have led to talk of tort reform, including proposals to adopt New Zealand's no-fault scheme.

In New Zealand, you can't sue for personal injury including injury as a result of negligence on the part of a doctor, hospital, nurse, etc. Instead, a person injured by medical error receives some income compensation and rehabilitative services, including treatments in private hospitals and clinics, home care, prescription drugs, physiotherapy, all things not covered by New Zealand's equivalent of Medicare.

The good news for both injured patients and their doctors is that patients don't have to prove negligence on the part of their doctors.

The Kiwi no-fault system has many appeals. Many more patients will receive some assistance after injury, including income supports and coverage for rehabilitation services, right when they need them most. Claims are processed within an average of 15 days as opposed to five years or more in the tort system. In addition, the claims process is user-friendly - you can easily make your claim without a lawyer - as opposed to the cost and complexity of litigation. New Zealand's scheme seems manageable in terms of total cost; it covers 4 million people for less than $30 million per year or just over $7 per person, per year.

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Advocates of the no-fault system also argue that it is an important first step in improving the overall safety of the healthcare system and creating a culture where doctors and other medical professionals are not afraid to admit where they have made mistakes.

This would be the decisive argument for no-fault but the research evidence (namely, whether it's safer in the New Zealand healthcare system because of no-fault) has yet to be proven.

On the other hand, one of the classic arguments in favour of tort law is that of deterrence. For example, doctors will be less likely to commit errors with the prospect of a lawsuit hanging over their head. There is no evidence at all from New Zealand that there are higher rates of error because patients can't sue.

Although there are many benefits to the Kiwi model, there are also concerns. First, the compensation that individual patients receive even for catastrophic injuries is modest and over time, the benefits have diminished. For example, patients used to receive a lump sum for loss of a limb, where now there are no lump-sum payments. Moreover, injured patients not receiving income at the time of their injury, such as stay-at-home-moms or seniors, do not receive earnings-related compensation.

Second, there are also criticisms with the scope of the scheme, with treatment injuries receiving compensation, while those suffering from illnesses receive no monetary benefits.

A third concern relates to the realization of patient safety improvements. With physicians so accustomed to practising within a fault-based system, a cultural shift to openness about medical errors may take some time. Although New Zealand has a no-fault system, there is still anecdotal evidence that doctors are reluctant to admit mistakes. This may result from fear of professional discipline or concern with reputation.

There are also issues specific to the Canadian context, which may mean that we can't simply adopt the Kiwi approach. As opposed to New Zealand, which has more broadly embraced no-fault accident compensation, restricting the reforms to medical error in Canada may make the realization of widespread cultural change more difficult. Furthermore, this would result in an anomalous situation where persons injured by doctors would be eligible for no-fault compensation, while persons injured by other professionals such as engineers would sue in tort.

Also, some of what the New Zealand scheme covers, including, for example, first-dollar coverage of primary care or access to private clinics to avoid long waiting times, is either already covered by Canadian Medicare or at odds with Canadian values in Medicare.

The relevant question is whether, on balance, the Kiwi system is better than the present tort system for medical error in Canada.

There are so many problems with the tort system for medical error that one is tempted to say that anything must be better. The real question, in our view, is whether a no-fault system will make the system safer or of higher quality.

On this one, there is no definite evidence as New Zealand has only in the last few years truly made the system no-fault for medical error. This is because the old test for compensation under New Zealand's no-fault scheme effectively required the victim of medical error to demonstrate fault! This has now changed but it is only over the last few years that we can say that New Zealand truly has a no-fault compensation system for medical error.

We should closely watch the results coming out from the Kiwi experience. In the meantime, it's the kind of initiative we should try out in a limited fashion and see how it works in a Canadian context.

For example, we should think about no-fault for primary care teams when we want teams of doctors, nurses, and pharmacists to work together without fighting over liability.

So should we embrace no-fault? On balance, the pluses seem to be increasingly outweighing the minuses but we need more research and better evidence of the ultimate impact of no-fault on safety and quality in healthcare.

This article is a modified version of that originally published in the Toronto Star on October 16, 2006.

[2] Tort is a legal term that means a civil wrong, and refers to that body of the law which will allow an injured person to seek compensation from the person who caused the civil wrong.

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