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Canadian Institute for Health Information • Institut canadien d'information sur la santé
www.cihi.ca • www.icis.ca
Vol. 16, No. 1 • Winter 2009
ISSN-1201-0383

Safety and quality: Measuring up

Most patients don't expect to succumb to an infection they acquire after they're admitted to hospital. Long-term care residents don't expect to fall and break a hip. And no one expects that a medication error by a health provider will be what takes his or her life. After all, "do no harm" is the underlying tenet of the Hippocratic oath.

However, these events occur across our health care system. Not intentionally, of course, but they are not uncommon. A 2004 study by Ross Baker and Peter Norton, funded by CIHI and the Canadian Institutes of Health Research, found that 1 in 13 adult patients admitted to acute care hospitals in 2000 experienced an adverse event, up to and including death. More than one-third of these events were considered to be "highly preventable."

The good news is work is ongoing to increase awareness and improve the quality and safety of care. Created in 2003, the Canadian Patient Safety Institute has a mandate to foster collaboration between governments and stakeholders, supporting the development of patient safety initiatives. In the years since the Baker–Norton study captured the prevalence of adverse events, a patient safety culture has started to take hold. Gradually, health care leaders have been embracing transparency, moving away from pointing fingers to learning from mistakes and adopting best practices. As you will read in this issue of *Directions*, this openness has grown with the help of good information.

In this issue

Canadian Institute for Health Information
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From the president

Health care is nothing if not human. It touches people who need care and the health professionals who provide it. And as we all know, people are not infallible. To err, as the saying goes, is human.

While not all adverse events result from human error, many of them can be avoided with the proper policies and processes in place. But as relatively straightforward as prevention may seem, it is a challenging undertaking. Across the country, initiatives are under way to limit the risk of adverse events. A culture of patient safety is taking hold at many facilities, where everyone—including management, front-line providers and housekeeping services—sees patient safety as his or her responsibility. This culture implies a collective sense of how things should be done and creates an open environment that encourages reporting of all adverse events and near misses. It also provides feedback to all front-line staff and builds a strong sense of respect within the organization.

In this issue of *Directions*, you can read about efforts to prevent medication errors, find out how hospitals are trying to curb the spread of infectious super-bugs and learn why there is a push for better chart documentation at all levels of care. Health professionals are taking ownership of this and working to establish and implement best practices across the spectrum of care.

At CIHI, we believe good intelligence feeds good decisions. Outcomes must be monitored and measured to ensure that policies and practices are leading to safer care. To support efforts of health professionals and managers to track success and identify areas for improvement, we developed patient safety indicators, adapted the hospital standardized mortality ratio for use in Canada and implemented new coding that will attempt to capture the prevalence of hospital-acquired infections.

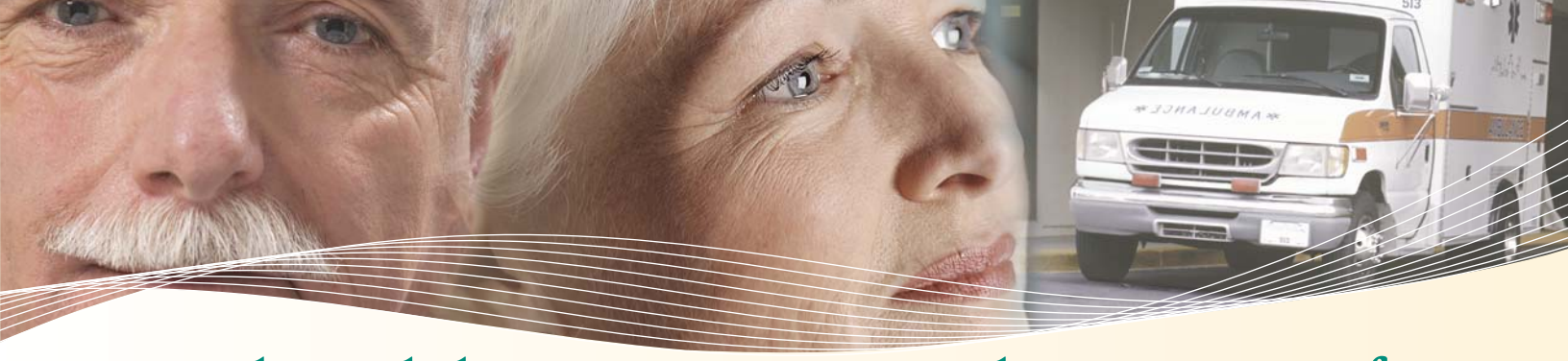
We're also building a hospital-based reporting system to help identify where and how medication incidents occur, with the goal of preventing them in the future. Medication incidents are the most common preventable cause of patient injury, so this latest effort represents our ongoing commitment to helping stakeholders further improve care.

There is still plenty we don't know, however. What policies and practices are most effective in improving patient safety and preventing adverse events? How well are hand-hygiene policies being followed? Have they reduced the number of hospital-acquired infections? How do we measure adverse events in the community?

We don't yet have all the answers, nor do we know how to prevent all adverse events. But we are committed to transparency around them. And by tracking how often they occur and understanding the factors that contribute to them, we are doing what we can to improve the quality and safety of patient care in Canada.

Glenda Yeates
President and CEO

Board of directors



New clinical decision support tools promote safety in home and continuing care

Many seniors with chronic health conditions take multiple medications, but with that comes the risk that some drugs or drug combinations may be unsuitable for the elderly. A new generation of decision support tools released by CIHI last year allows home and continuing care providers to flag individuals whose medications should be reviewed to prevent adverse events.

The interRAI Clinical Assessment Protocols (CAPs) address health and safety issues, such as medications, falls, pressure ulcers and pain. Developed for use in home and facility-based continuing care settings, the protocols represent a multi-national effort by clinicians and researchers to gather the best available information on safe and effective care.

In the care setting, when key items in an assessment indicate a risk of decline or failure to improve, a CAP is "triggered" and the person's care team is provided with an evidence-informed approach to the problem. Among the 27 new protocols is the Appropriate Medication CAP.

Data from CIHI's Continuing Care Reporting System and Home Care Reporting System can be used retrospectively to shed light on important safety risks at a population level and help to focus prevention efforts.

Recently, CIHI looked at seniors (65 and older) who were receiving long-term home care or living in residential care (nursing home or long-term care home) and whether they triggered the CAP.

Figure 1 Percentage of Individuals in Long-Term Care and Home Care Triggering the Appropriate Medications CAP

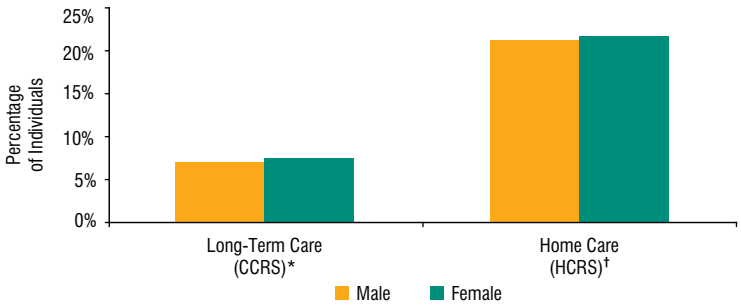


Figure 1 illustrates that, based on their latest assessment, one in five home care seniors would have triggered the Appropriate Medications CAP, signalling the need for a medication review. Fewer than 1 in 10 would have triggered it in the more structured environment of a long-term care or nursing home.

Figure 2 Percentage of Individuals in Long-Term Care and Home Care With Acute Services Visits by Triggering of the Appropriate Medications CAP

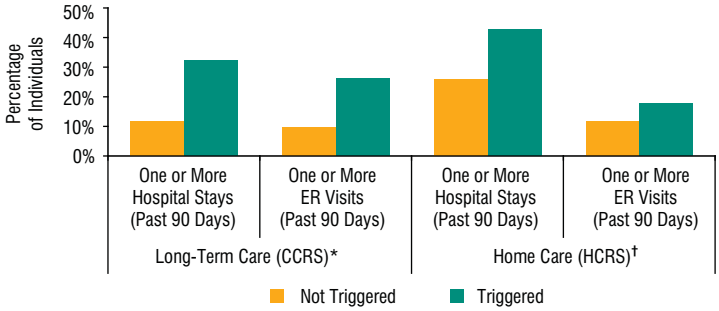


Figure 2 suggests that those who trigger the Appropriate Medications CAP at home or in a residential continuing care facility are more likely to be admitted to an acute care hospital or to use a hospital emergency room. This would suggest that prevention efforts based on the CAP can benefit not only the individual but also the health care system.

Clients are now working toward implementing the new CAPs. CIHI will provide quarterly comparative CAPs reports to system managers begining in 2009–2010 and will monitor the impact of these new tools on safety in home and continuing care across Canada.

Notes for Figure 1 and Figure 2
* Includes data from the last full MDS 2.0 assessment completed in 2007–2008 on long-term care residents age 65+.
† Includes home-care clients age 65+ assessed with the RAI-HC during 2006–2007 and 2007–2008.

Sources for Figure 1 and Figure 2
Continuing Care Reporting System and Home Care Reporting System, 2007–2008, Canadian Institute for Health Information.

Using drug claims data to support safe and effective therapy

The safe and effective use of medications is key to improving health outcomes for millions of Canadians. However, use of multiple medications by individuals, often termed "poly-pharmacy," can sometimes lead to adverse effects, drug interactions, non-compliance and additional health problems. While the numbers themselves don't tell the whole story, using more than five drugs is thought by many to increase the risk of such adverse events.

These data can be used by health care providers, policy-makers and researchers to identify potential problems, enhance understanding of changes in use and identify high-risk drug combinations.

By providing a new window on how drugs are being used, drug claims data in CIHI's National Prescription Drug Utilization Information System (NPDUIS) can support safe and effective drug therapy. These data can be used by health care providers, policy-makers and researchers to identify potential problems, enhance understanding of changes in use and identify high-risk drug combinations. A recent NPDUIS analysis of seniors' use of drugs from the Beers' list, which are potentially inappropriate to use, found that about one in four seniors had a drug claim from the list.

Claims data can also help monitor changes in use following the release of new drugs, new evidence, safety information or practice guidelines. Following the publication of a major study on the risks of hormone replacement therapy, a NPDUIS analysis revealed that there had been a 60% decline in the use of hormone replacement therapy (HRT) by senior Canadian women.

Analytic work using these claims data has just begun to scratch the surface of drug safety and effectiveness. Future analyses will build on this work, as the aging population and growing prevalence of chronic conditions will see this become an increasingly widespread concern. CIHI is uniquely positioned to generate pan-Canadian health outcome information related to drug therapy.

Falls landing seniors in hospital

A recent CIHI report found that beyond respiratory and circulatory conditions, fractures (due to falls) were the most common reason patients in continuing care were transferred to a hospital. That raises questions related to potentially preventable admissions and patient safety.

In 2007–2008, 35% of acute care hospitalizations in Canada (excluding Quebec) were for people age 75 and older. Of those, 10% were patients transferred from a continuing care setting. *Patient Pathways: Transfers From Continuing Care to Acute Care* found that 16% of transferred residents died while in the hospital (compared with 9% of non-transferred patients 75 and older).

Falls were a leading cause of injury among patients admitted both from continuing care and from home (90.3% and 76.2%, respectively). In addition to age, risk factors for falls include previous falls, levels of mobility, cognitive impairment and medication errors.

Similarly, a report by the Canadian Patient Safety Institute identifies falls as one of the most frequently reported adverse events in continuing care, and a common reason for seniors' visits to the ED.

Patient safety advocates suggest that focusing on fall management instead of prevention may be appropriate, as it balances the fine line between encouraging ongoing mobility and functionality through exercise, while mitigating some of the risk factors.

Hip fracture hospitalizations and in-hospital hip fractures are being monitored in annual reports of health indicators to identify areas for improvement in patient safety. Since monitoring began, hospitalizations for hip fractures in Canada for seniors have declined, down 13% between 2000–2001 and 2005–2006.

Facts-at-a-glance

Patient Safety

- In 2005, 1 in 10 adults with health problems reported receiving the wrong medication or wrong dose in the previous two years.
- Also in 2005, 18% of nurses surveyed reported that patients in their care had occasionally or frequently received the wrong medication or dose in the previous year.
- In a 2006 survey, 8% of primary care doctors reported that patients had received the wrong drug or dose in the previous year.
- One out of 21 mothers giving birth by vaginal delivery (almost 5%) experience obstetrical traumas, such as lacerations of the cervix, vaginal wall or sulcus, or injury to the bladder or urethra.
- Between April 2003 and March 2006, on average, 1 in 141 babies born in hospitals outside of Quebec experienced birth trauma, such as injuries to a baby's scalp and nervous system or skull fractures. This represents more than 1,700 cases yearly.
- About 1 in 3,000 inpatients in hospitals outside of Quebec and parts of Manitoba had a foreign object left in them after a procedure between 2003–2004 and 2005–2006.

Source
Patient Safety in Canada, 2007.

Washing away infections

Hand hygiene is recognized in Canada and internationally as a top patient safety priority in preventing the spread of infections.

A recent CIHI analysis found that 99% of the 103 Ontario hospitals participating in a 2008 patient safety survey reported having a formal hand hygiene policy in place. However, the survey found that the majority of hospitals (61%) did not have an auditing process to ensure that hand-washing procedures were being followed.

Community hospitals were the most likely to audit hand hygiene practices (47%), followed by teaching hospitals (35%) and small hospitals (19%). Among the hospitals with no auditing system, 59% reported that they would be implementing one this year.

Auditing may prove critical, as despite the link between hygiene and hospital-based infections, research shows poor hand-washing compliance, with between 30% and 60% of hospital staff following procedures properly.

Researchers cite skin irritation from hygiene products, understaffing or overcrowding, performing activities with a high risk of cross-contamination and working in intensive care as possible contributing factors.

To support hospitals implementing proper hand hygiene practices, the Stop! Clean Your Hands campaign was launched in June 2007 by the Canadian Patient Safety Institute, the Community and Hospital Infection Control Association, Accreditation Canada and the Public Health Agency of Canada. In Ontario, the Ministry of Health and Long-Term Care unveiled the Just Clean Your Hands program in March 2008.

"In recent years, limiting the spread of hospital-acquired infection has become a major focus of patient safety campaigns across the country," says Dr. Michael Gardam, Medical Director at Toronto's University Health Network. "These survey results offer a rare chance to see how these campaigns are changing the culture of Ontario's hospitals and creating a safer environment for patients."

HSMR:
Patient safety data in action

For the past two years, CIHI has publicly released hospital standardized mortality ratios (HSMRs). At the Scarborough Hospital, they've been a catalyst for adopting a culture of patient safety.

Dr. Steven Jackson, Chief of Staff, said it has become a corporate priority, leading to institutional changes, including implementing and closely monitoring every initiative of Safer Healthcare Now!, a grassroots patient safety campaign, better chart documentation and a move toward standardized treatment practices. There has also been a dramatic reorganization of how each program is accountable for patient safety, as well as the reporting and accountability structure from the front lines up to the CEO and hospital board. "Unfortunately, sometimes it takes something very dramatic to get people's attention focused in the right direction," Jackson says of the HSMR's public release in 2007.

Scarborough's data have since improved quite a bit, but he says the hospital is committed to further improvement. "We see there are things we can do better, but this has helped motivate people to take this on."

The hospital wants to move away from a culture of blame and shame toward one of accountability, openness and transparency, where everyone looks at why something happened and works to prevent it from happening again.

Across the country, hospitals and health providers are committed to improving the quality and safety of patient care and have implemented strategies toward that.

The Ontario Ministry of Health and Long-Term Care has identified the HSMR as one of eight publicly reportable patient safety indicators for eligible acute care facilities across the province.

As a "big-dot" summary measure, the HSMR reflects the number of deaths observed in a hospital relative to what would be expected, based on the average Canadian experience. In doing so it accounts for several differences in the types of patients a hospital sees, such as the age, sex, diagnoses and admission status of patients.

"While not every hospital death can be prevented, reducing mortality continues to be an important goal for hospitals and health professionals across the country," says Glenda Yeates, CIHI's President and CEO. "The HSMR provides a key starting point for hospitals and health regions to identify areas for improvement—as well as monitor trends over time and progress of their efforts—in a tangible way."

The HSMR reflects the outcomes of many processes of care, so it takes time for changes to affect mortality. At Ontario's Windsor Regional Hospital, however, staff are already very encouraged.

A new focus on patient safety has led to the creation of a board quality of care committee, as well as renewed emphasis on the medical quality assurance committee, which comprises physician and administrative leadership. Clinical and non-clinical directors also instituted a weekly patient safety huddle, taking a proactive approach to reduce the risk of adverse events, such as hospital-acquired infections, and monitoring efforts around improving documentation of patient charts.

This involves random chart audits, the results of which are published every Monday. Any program area not complying must put together an action plan to address the problem.

"The success and process changes we've seen are owned by the front-line employees and medical staff on each unit," says Karen McCullough, Vice President of Acute Care and Chief Nursing Executive. "Until you can push the accountability to the bedside, you're only going to have small changes you can't sustain. For the long term, you have to provide people with the skills they need to do what they need to do."

While it's by no means an overnight success story, she says the hospital is committed to doing what needs to be done. "It takes an incredible amount of hard work and energy every day, but we are energized by the results we are starting to see."

The Vancouver Island Health Authority is building on summary HSMR data and is examining changes in mortality on a month-to-month basis using time series tools, with the goal of picking up systemic problems more quickly.

"We're looking for trends at a much finer level and granularity," says Dr. Larry Frisch, Executive Medical Director for Quality, Research and Safety. "It allows us insight into potential quality challenges that we wouldn't otherwise be able to see."

While not all deaths are adverse outcomes, Frisch says they want to study those that present a potential learning experience.

"We're trying to focus our attention on those cases that have the highest probability of needing that attention."

Getting a handle on the spread of hospital-based infections

Although reducing hospital-acquired infections is one of the top patient safety priorities in Canada, nobody can say just how many of these infections exist in Canada's acute care hospitals.

CIHI is hoping to change that. In April, new coding standards will be launched in an attempt to better capture these infections through administrative data submitted by hospitals to the Discharge Abstract Database (DAD). The hope is that these coding changes will allow for more consistent, comprehensive and nationally comparative data on super-bug infections.

While some hospitals already submit this information to the DAD, the data are not comprehensive or consistent across jurisdictions. As of April, it will be mandatory for hospitals, when coding infections, to specify the infection organism and the drug to which the bug is resistant (for example, Staphylococcus aureus resistant to methicillin). In addition, a diagnosis-clustering data element has been added to the DAD to link the infection site and drug-resistant micro-organism information together.

"When the coding is clear and consistently applied across the country, we hope to have a better idea of the extent of these infections in Canadian hospitals, which we don't right now," says Jeanie Lacroix, CIHI's manager of Hospital Reports.

"It would be a big step forward in measuring the safety of care as these antibiotic-resistant super-bugs, specifically Methicillin-resistant Staphylococcus aureus (MRSA), Vancomycin-resistant enterococci (VRE) and Clostridium difficile (C. difficile), lead to considerable illness, hospital readmissions and deaths," Lacroix says.

The costs associated with MRSA in Canadian hospitals have been pegged as high as $59 million annually. A large national surveillance project found that a hospital is likely to have 10 readmissions each year, at an estimated cost of $128,200, from patients developing C. difficile–associated diarrhea after discharge. Another study found that infected patients stay 2.5 times longer than uninfected patients.

Where you'll see CIHI next!

April

27–28 Health Innovation and Policy Summit
St. Andrew's Club and Conference Centre, Toronto

28–30 Canadian Forum on Patient Safety and Quality Improvement
Westin Harbour Castle, Toronto

May

11–14 CAHSPR Conference 2009
Westin Hotel, Calgary

14–15 AQAM : Journée annuelle de perfectionnement
Manoir du Lac Delage, Quebec

June

May 31–June 3 e-Health 2009, Quebec

1–2 National Healthcare Leadership Conference
St. John's Convention Centre

8–9 OHA Case Mix 2009
Metro Toronto Convention Centre

12–13 CHIMA 2009 Annual Conference
Delta Bessborough, Saskatoon

22–24 2009 Canadian RAI Conference
Westin, Halifax

Transitions

Helen Angus joined CIHI as our new Vice President of Research and Analysis on December 1. Helen has 23 years experience working in the health care system, the last 7 of which have been with Cancer Care Ontario (CCO). She most recently served as the vice president of planning and strategic implementation, but over the years her CCO responsibilities have included the Cancer Quality Council, system-level strategy development and provincial planning and leadership for the first cancer system quality index. Helen has also worked for Ontario's Ministry of Health and Long-Term Care on the Trillium Drug Program and the Long-Term Care Redevelopment Project.

Credits

CIHI Directions ICIS is published by the Canadian Institute for Health Information (CIHI). CIHI collects and analyzes information on health and health care in Canada and makes it publicly available. For comments, suggestions or additional copies of this publication, in English or French, please contact the editor, at:

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Cette publication est également disponible en français.