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The burden of chronic disease

Canada's chronic disease burden is growing, increasingly impacting the health of Canadians, the economy and the health care system.

One in three Canadian adults has a chronic health condition. Many have more than one. The Chronic Disease Prevention Alliance of Canada says illnesses such as congestive heart failure, hypertension, chronic obstructive pulmonary disease and diabetes account for two-thirds of all deaths in this country.

This is the case in almost all countries. Of the 58 million deaths globally in 2005, the World Health Organization estimates 35 million were a result of chronic diseases. The toll is projected to increase 17% in the next decade due to an aging population and one that continues to grow in girth.

Here at home, questions have been raised about the quality of chronic care, with many calling for a shift in system focus from the traditional approach of "find it and fix it" to one of "prevent it, find it, manage it."

Change can't occur without information. Yet gaps remain in what we know about chronic disease management, mainly around primary care. This issue of *Directions* looks at CIHI's work to identify and close these gaps in an effort to inform change and help the system better meet the needs of Canadians.

In this issue

Canadian Institute for Health Information
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From the president

CIHI is passionate about information. And although we have more information on health in Canada than ever before, there are still gaps. Chronic diseases and conditions are among the areas where we'd like to know more.

Recently we spent a significant amount of time talking to our stakeholders in every province and territory to solicit their views on shaping our future plans and priorities. As part of these strategic consultations, they told us they need more data in the areas of primary and ambulatory care, as well as data about community mental health services.

We have listened and are responding with plans to create new data holdings over the next four years. This is not an endeavour without challenges, but we will work with our stakeholders to explore gathering data in these areas.

Already we are making progress. Having led the effort to create primary health care indicators, this year CIHI will release the *Primary Health Care in Canada Chartbook* that will help clarify what we know and don't know about primary care.

Better information on primary health care is critical in the face of an aging population that's bearing an increasingly heavy chronic disease burden, as primary care is where the majority of chronic health conditions are managed.

Recently, our report *Health Indicators 2008* took an in-depth look at potentially preventable hospitalizations for ambulatory care sensitive conditions, which include chronic illnesses such as diabetes, hypertension or chronic obstructive pulmonary disease. Because these conditions can generally be successfully managed in the community, high rates of hospitalization among patients with them could potentially be reduced through new developments in primary care.

CIHI has an important role to play supporting those working to meet the health needs of Canadians, particularly the growing number who are living with chronic illnesses. We are working hard to gather data in these areas, because just as good primary care is critical at the patient level, sound information is critical to managing these diseases and conditions at a system level.

As what we do is guided by our board of directors, I'd like to welcome five new members. Karen Dodds is the assistant deputy minister of Health Canada; Chris Eagle is chief operating officer, urban, at Alberta Health Services; Vivek Goel is president and CEO of the Ontario Agency for Health Protection and Promotion; Munir Sheikh is chief statistician of Canada with Statistics Canada; and Howard Waldner is president and CEO of the Vancouver Island Health Authority.

Welcome to CIHI!

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Munir Sheikh
Chief Statistician of Canada, Statistics Canada

Howard Waldner
President and Chief Executive Officer, Vancouver Island Health Authority

Studying obesity and urban environments

To a large extent, obesity is feeding the growing prevalence of many chronic diseases and conditions. As part of its ongoing mandate to examine population-level factors on healthy weights, CIHI's Canadian Population Health Initiative (CPHI) recently commissioned a review of existing research on the relationship between obesity and where people live.

The *State of the Evidence Review on Urban Health and Healthy Weights*, conducted by University of Alberta researchers, found there are associations between structural characteristics of urban environments and behaviours that contribute to healthy weights. However, researchers found little evidence describing the effectiveness of interventions aimed at achieving healthy weights in urban settings.

"Obesity is increasingly seen as a complex issue that calls for coordinated involvement of all sectors," said Jean Harvey, Director of CPHI. "Although many program and policy responses have been identified in this work, few have been systematically tested, so they offer limited guidance to those trying to select initiatives that work. CPHI and its partners are working to try to fill that knowledge gap."

A chronic burden for home and continuing care clients

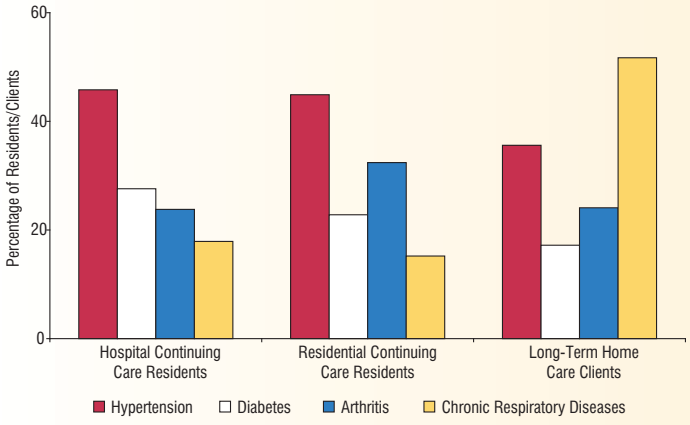
Although still in the early days of data collection, CIHI's Home Care Reporting System (HCRS) and Continuing Care Reporting System (CCRS) are painting a picture of chronic disease across Canada.

In residential care facilities and continuing care hospitals in British Columbia, Nova Scotia and Ontario submitting data to CIHI, as well as in home care settings in the Yukon, more than 7 out of 10 of the 23,000 individuals included in the databases have at least one of six chronic diseases. Hypertension is the most common, affecting 45%, while arthritis and diabetes affect 29% and 25%, respectively. The highest rates of chronic respiratory disease are in the Yukon home care population, where half of clients suffer from emphysema, chronic obstructive pulmonary disease or asthma.

Many of these individuals face other challenges, including memory problems, unstable health conditions and loss of independence in self-care.

In the hospital setting, patients with chronic diseases have very high rates of physical impairment and clinical instability. In residential care, individuals also have very high rates of physical impairment, but they are more likely to be cognitively impaired and less likely to be clinically unstable.

Selected Chronic Diseases Among Continuing Care Residents and Long-Term Home Care Clients



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

In home care, clients are much more physically independent and less likely to be cognitively impaired than those in the other settings, but more than half of them have unstable health conditions.

As more data are captured across the country and care continuum through HCRS and CCRS, CIHI will have an increasingly rich source of longitudinal information on services and outcomes for individuals with chronic diseases.

Transplantation rates for young kidney failure patients triple

Every year in Canada, between 80 and 100 people under 19 are diagnosed with end-stage renal disease (ESRD). Advances in treatment have resulted in a fairly stable number of children being treated for this over the last 25 years, with approximately 500 young Canadians being treated at any given time.

However, a recent report from CIHI has found that the proportion of young patients being treated with transplantation has more than tripled, while the proportion treated with dialysis decreased from 56.4% in 1981 to 22.4% in 2005.

As well, for young kidney failure patients receiving a transplant, many more are receiving those organs from living donors, especially parents and siblings.

The annual report *Treatment of End-Stage Organ Failure in Canada* shows that 80% of pediatric kidney failure patients receive transplants. Pre-emptive transplant rates (those done before a patient begins dialysis) varied over time from 10% to 30%, and were 23% in 2005. Among adults, the rate was only 3%.

Overall, pediatric survival rates have improved and are much higher for those treated with transplantation. The average five-year survival rate for dialysis patients age 5 to 9 between 1991 and 2000 was 83.7%. Among transplant patients the same age during the same period, the rate was 95.7%.

"Dialysis is a life-saver; however, it can have negative impacts on health and well-being," said Margaret Keresteci, CIHI's manager of Clinical Registries. "When someone requires dialysis, it's generally for life, so when you're looking at kids, you want to treat the chronic disease early to try to give them as normal a life as possible."

"Dialysis is a life-saver; however, it can have negative impacts on health and well-being."

To appropriately plan services, solid data and evidence to help inform future directions in the treatment of children with kidney failure are required.

"In order to address evolving pediatric ESRD patient characteristics and system requirements for their care, we're going to have to address the fact that ESRD must be viewed from a chronic disease management perspective," said Keresteci.

Strengthening primary health care information

Primary health care (PHC) is the most common type of health care experienced by Canadians. Several years ago, when the first ministers agreed PHC should be a priority area for improvement, there were limited standardized data with which to measure and report on PHC across Canada. Although significant gaps still exist, progress is being made.

In 2005, CIHI worked with a broad range of experts throughout the sector to identify and develop PHC indicators. The result was a set of agreed-upon indicators that can be used to measure and monitor PHC at multiple levels across the country. The data gaps that need to be filled in order to report on these indicators were also identified.

Since developing the PHC indicators, CIHI and its partners have increased the availability of survey-related PHC data by adding and modifying questions in the National Physician Survey and some Statistics Canada surveys. CIHI will also release the *Primary Health Care in Canada Chartbook* this year, which highlights approximately 30 indicators by using available pan-Canadian, provincial/territorial and international data sources. Projects are also under way to increase the standardization of data in electronic health records and to collect additional data on primary health care. "Over the next few years, we will be working to increase the data available regarding primary health care," said Patricia Sullivan-Taylor, CIHI's manager of primary health care information.

Facts-at-a-glance

Costs by condition

- Hospitals in Canada, outside of Quebec, spent a total of $17 billion on inpatient acute care in 2004–2005, when 2.4 million inpatient stays were recorded.
- Diseases of the circulatory system, including heart attacks and angina, cost the most to treat: $3.3 billion (19% of total acute care inpatient costs).
- Diseases of the respiratory system accounted for 9.5% of total acute care inpatient costs ($1.6 billion).

Source
Canadian Institute for Health Information, *The Cost of Acute Care Hospital Stays by Medical Condition in Canada, 2004–2005* (Ottawa, Ont.: CIHI, 2008).

- Complications from chronic diseases and secondary illnesses present when patients were admitted or that developed during their stay represented 27% of total acute care inpatient costs ($4.6 billion).
- The top 15 most expensive medical conditions account for 31.4% of total acute care costs ($5.4 billion). Chronic conditions and diseases figure prominently in this top 15:
  - > Chronic lower respiratory diseases (except asthma)—$439 million
  - > Heart failure—$426 million
  - > Diabetes—$284 million

Quality and patient safety at the forefront

Last November, for the first time in Canada, hospital standardized mortality ratio (HSMR) results were published by the Canadian Institute for Health Information.

The first indicator of its kind in this country, the measure compares the actual number of deaths in a hospital or region with the average Canadian experience, after adjusting for factors that may affect in-hospital mortality rates, including the age, sex, diagnosis and admission status of patients.

Developed in the U.K., the HSMR was adapted by CIHI for use in Canada at the request of hospitals and patient safety experts. The report, *HSMR: A New Approach for Measuring Hospital Mortality Trends in Canada*, includes results for 85 larger acute care facilities and 42 health regions over three fiscal years. In that time, in-hospital mortality fell 6% in Canada.

Trends, however, varied by patient group. Death rates from heart attacks fell faster than among those with pneumonia but stayed constant or rose among patients with chronic obstructive pulmonary disease.

> "You're not going to see changes overnight, but it's clear hospitals are taking this seriously."

CIHI has since been working with hospitals and health regions that want to determine what's driving their HSMR, in an effort to improve the quality of care.

"We're tracking their results, trying to learn more and identify areas for improvement," said Greg Webster, CIHI's director of Research and Indicator Development. "In Ontario, for example, interest has been quite high."

In December, then-Ontario Health Minister George Smitherman called the public HSMR release "revolutionary." Ontario hospitals will soon have to report their results along with other safety and quality data.

Real progress, however, requires widespread change and systemic efforts.

"You're not going to see changes overnight, but it's clear hospitals are taking this seriously," Webster said. "This has brought quality and patient safety to the forefront. We're all talking about it again and that's what's important."

Wide variation in potentially preventable hospitalizations for chronic conditions

Hospitalization rates vary across the country for seven chronic conditions that could potentially be managed or treated in the community, according to a recent CIHI report.

These are ambulatory care sensitive conditions (ACSC), such as asthma, diabetes and hypertension, where appropriate primary health care in the community may prevent or reduce the need for hospital admission.

Where more could be done . . .

Others have also suggested Canada could better manage chronic diseases.

A report released last December by the Organisation for Economic Co-operation and Development (OECD) compared data from CIHI and Statistics Canada with information from other OECD member countries and found that only 48.6% of Canadian diabetics between the ages of 18 and 75 had an annual eye exam in 2005. The OECD average was 57.3%.

The report, *Health at a Glance 2007*, said given the frequency of ophthalmologic complications in diabetics, annual eye exams are one of the most simple and universally accepted practices of care.

Also in December, the Health Council of Canada (HCC) noted that this country ranks last among seven others when it comes to timely access to high-quality primary health care. It found that 30% of Canadians with a chronic health condition waited six days or more for an appointment when they were last sick. In New Zealand and the Netherlands, fewer than 6% waited that long.

Another HCC report found that less than half of diabetics get the lab tests and procedures experts recommend—which could prevent serious complications.

The HCC called for a shift in system focus from a "find it and fix it" approach toward a "prevent it, find it, manage it" approach integrating quality care and prevention. This would benefit health outcomes and help ensure the sustainability of the health care system.

As part of *Health Indicators 2008*, CIHI took a close look at the 87,500 admissions for ambulatory care sensitive conditions in 2006–2007 (outside Quebec) and found differences in rates between provinces, territories and regions. ACSC hospitalization rates were 60% higher in rural areas (510 per 100,000 population) than in urban areas (318 per 100,000 population).

Rates also varied by neighbourhood income. In 2006–2007, the hospitalization rate for those younger than 75 with an ACSC in Canada's lowest-income neighbourhoods (521 per 100,000 population) was more than twice as high as the rate in the highest-income neighbourhoods (234 per 100,000 population).

"Our study confirms there is a significant gap between Canadians living in richer and poorer neighbourhoods when it comes to potentially preventable hospitalizations for chronic diseases," said Indra Pulcins, CIHI's director of Health Reports and Analysis. "The higher your neighbourhood income, the less likely you are to be admitted to hospital for an ambulatory care sensitive condition."

Several factors may help explain the variations. Communities reporting problems with access to primary health care, such as low physician supply, may have higher ACSC admission rates. The ability to manage these conditions in the community, such as getting the right tests and the right medications, as well as appropriate patient self-monitoring, may also play a role.

CIHI's analysis also shows that return visits to the hospital are common for ACSC patients, with one in five patients readmitted at least once for the same or another ACSC within a year of their initial admission.

While ACSC hospitalizations are not always avoidable, higher rates of admission may signal an opportunity to improve the planning or delivery of primary health care services to better meet the needs of the population.

"This indicator offers health planners an important first step toward identifying potential factors in order to target improvement," Pulcins said.

Despite Canada's growing chronic disease burden, the good news is that, overall, ACSC hospitalization rates are falling—down 22% between 2001–2002 and 2006–2007, after population growth and aging were taken into account.

Where you'll see CIHI next!

November

3–5 OHA HealthAchieve 2008
Metro Toronto Convention Centre
Toronto, Ontario

16–18 Ontario Injury Prevention Conference
Courtyard by Marriott
Toronto, Ontario

19–21 AQESSS—Informatique Santé 2008
Palais des congrès
Montréal, Quebec

27–29 Family Medicine Forum
Sheraton Centre Hotel
Toronto, Ontario

December

8–11 Pan-Canadian Broadcast of the IHI National Forum
Nashville, Tennesse

Data in action: CIHI guides best practices

The Registered Nurses' Association of Ontario (RNAO) has used CIHI's data with the hope of putting kids into action. By drawing on three recent CIHI reports, the RNAO developed clinical best practice guidelines around preventing childhood obesity in 2005.

They provide direction for nurses working with children to help promote healthy eating and increase activity through educational, organizational and policy recommendations.

Paula Robeson, Development Panel Team Leader, said despite a systematic evidence review, CIHI's data were crucial to panel members grasping the scope of Canada's obesity issue.

"CIHI is seen as a credible source of Canadian information," she said. "The data make the case for why this is an important guideline to follow in your practice."

The guidelines are now being implemented in 180 schools by Niagara Region Public Health nurses, as well as in Toronto's Hospital for Sick Children.

Pam Hubley, Sick Kids' Associate Chief of Nursing Practice, said she's hoping the guidelines will help shift nursing practice to include healthy eating and lifestyle as part of childrens' assessments, no matter the reason they're at the hospital.

"When you think about all that can occur to (an obese) child's health and the cost of treating that . . . as well as the emotional and social costs, it's essential to consider the prevention side," Hubley said. "As a leading pediatric organization, it's very important we pay attention to not only what we can treat, but to how we can prevent children from getting to a place where they need treatment."

The guidelines are reviewed every three years and Robeson said they will use CIHI data to track trends to determine if prevention efforts by multiple partners are working, as well as to update evidence to provide further guidance.

Reports used by RNAO

- *Obesity in Canada: Identifying Policy Priorities* (2003)
- *Overweight and Obesity in Canada: A Population Health Perspective* (2004)
- *Improving the Health of Canadians* (2004)

Conference to focus on root causes of chronic diseases

Working toward its goal of reducing the chronic disease burden in Canada, the Chronic Disease Prevention Alliance of Canada (CDPAC) will host a conference this November, titled "Integrated Chronic Disease Prevention: Taking Action Together."

A growing network of more than 60 member organizations and alliances, CDPAC has identified obesity reduction and improved health systems capacity as priority areas to help reduce chronic diseases. The conference will examine how various individuals, strategies and sectors can collaboratively act on the root causes of chronic disease in Canada. The focus will be on three action areas: leading public policy, sustaining system change and researching, measuring and monitoring action.

The Canadian Population Health Initiative (CPHI) is a partner on the conference planning committee and CIHI is sponsoring the event and presenting at it. For more information visit www.cdpac.ca.

Electronic health records: build once, use often

The electronic health record (EHR) has tremendous capability to improve front-line care by offering health care providers a more complete patient picture: where the patient goes, the health record follows, with a lifetime of health and care history in tow. In addition to more streamlined care, this can lead to better outcomes and potentially fewer adverse events.

Beyond point-of-care decision-making, the EHR presents an opportunity to enhance population health and the system as a whole. It can serve as a rich source of data to assist policy-makers, system managers, care providers and researchers in improving health and health care for all Canadians. For instance, by tracking the effectiveness of outpatient treatments for a particular disease, health care planners and providers can learn from best practices and improve the overall quality of care.

Health Information Summit 2008
Build Once, Use Often: Harnessing the Full Power of the EHR

Before this untapped potential can be realized, Canadians must collectively decide what health information is appropriate to share. In January, more than 100 health leaders from across Canada participated in a summit to help start this conversation.

"Health Information Summit 2008: Build Once, Use Often" was organized by the Canadian Institute for Health Information and Canada Health Infoway. Held in Kananaskis, Alberta, it examined the necessity of designing a system that produces high-quality standardized data. This means that all involved must agree on what data are collected, as well as a consistent way of defining, capturing and, where appropriate, sharing those data.

CIHI will continue to participate in discussions on the potential of electronic data to improve health and health care for all Canadians. As was reiterated during summit sessions, privacy concerns must remain at the forefront of all discussions.

"There is incredible power to be harnessed in this information," said Glenda Yeates, CIHI's president and CEO. "To do that responsibly, conversations must continue across the country to determine what information is appropriate to share not only to benefit individual Canadians, but Canadians as a whole."

Transitions

Jean Harvey is the new director of the Canadian Population Health Initiative (CPHI). A manager since joining CIHI in June 2007, Harvey has worked closely with CPHI's council and stakeholders to foster a better understanding of factors that affect the health of individuals and communities, and to contribute to the development of policies that reduce inequities and improve the health and well-being of Canadians.

Harvey has a master's in health science from the University of Toronto. She came to CIHI from the Chronic Disease Prevention Alliance of Canada (CDPAC), where she was the interim executive director. She also has extensive experience working at the local, national and federal levels, including in public health at the City of Ottawa.

Louis Barré is the new vice president of Strategy, Planning and Outreach. This newly created position within CIHI's executive team will oversee communications, strategy development and operational planning.

Louis comes to CIHI from Manitoba's Ministry of Health, where he led the development of health information management, research and decision support services. He was responsible for the province's data and research relationships with health authorities, agencies, research organizations, provincial and national organizations. Louis was pivotal to the development of information systems to support health system management, accountability and reporting across Manitoba's health sector. He has also led provincial and national initiatives in health indicators, including the innovative development and use of administrative data for health system management, population health and health services research. A recognized leader in the field of data linkages and government academic partnership, Louis has been an invited speaker at numerous related discussions.

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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